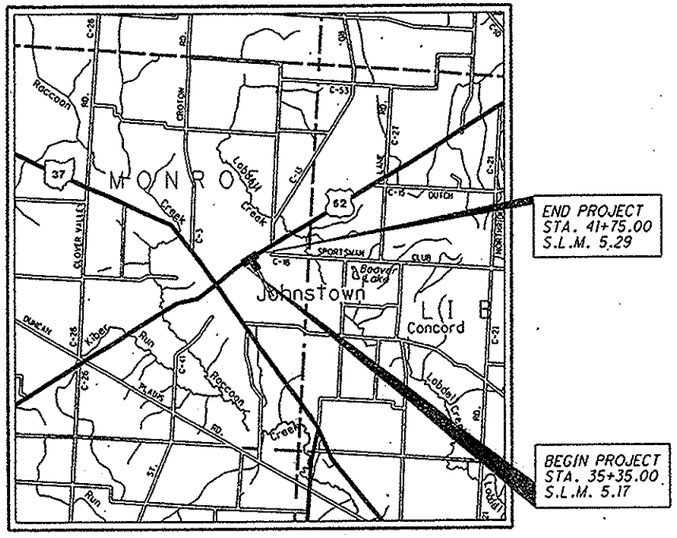
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
LIC-62-5.17
VILLAGE OF JOHNSTOWN
MONROE TOWNSHIP
LICKING COUNTY



LOCATION MAP

LATITUDE: 40°09'30" N LONGITUDE: -82°40'30" W

SCALE IN MILES
0 1 2 3 4

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
STATE & FEDERAL ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

	U.S. 62	COMMERCE BLVD.
CURRENT ADT (2013)	14,970	3060
DESIGN YEAR ADT (2018)	16,640	5100
DESIGN HOURLY VOLUME (2018)	1660	510
DIRECTIONAL DISTRIBUTION	0.54	0.80
TRUCKS (24 HOUR B&C)	4.5%	7.5%
DESIGN SPEED	40 MPH	30 MPH
LEGAL SPEED	35 MPH	25 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	RURAL MAJOR COLLECTOR	RURAL LOCAL

DESIGN EXCEPTIONS ____ NONE REQUIRED

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

PLAN PREPARED BY:
W.E. STILSON
CONSULTING GROUP
355 E. Campus View Blvd. - Suite 250
Columbus, Ohio 43235

ENGINEERS SEAL:

STATE OF OHIO
KEVIN JOSEPH GRATHWOL
E-55282
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Kevin J. Grathwol
DATE: 11/12/12

INDEX OF SHEETS:

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	1-20-12	HL-20.11	1-19-07	TC-21.20	4-15-11	MT-97.10	10-15-10		
BP-4.1	7-16-04	HL-30.11	10-16-09	TC-41.20	1-19-01	MT-97.11	10-15-10		
BP-5.1	7-28-00	HL-30.22	4-17-09	TC-42.20	1-21-11	MT-99.20	1-16-09		
				TC-52.10	1-19-07	MT-101.90	10-21-11		
RM-1.1	7-15-11			TC-52.20	1-19-07	MT-105.10	1-16-09		
				TC-71.10	1-21-11	MT-120.00	1-16-09		
CB-1.2	7-15-05			TC-73.10	10-21-11				
CB-2.2	7-15-05			TC-81.21	10-21-11				
				TC-83.10	1-19-07				
HW-2.1	7-30-07			TC-83.20	1-21-11				
HW-2.2	7-30-07			TC-85.20	7-15-11				
DM-1.4	7-15-11								
DM-4.4	4-17-09								

SUPPLEMENTAL SPECIFICATIONS

800	4/20/12
802	1-20-12
816	1-20-12
832	5-5-09
907	1-20-12

SPECIAL PROVISIONS

PROJECT DESCRIPTION

IMPROVEMENT OF THE INTERSECTION OF U.S. 62 AND COMMERCE BLVD. VIA THE ADDITION OF RIGHT TURN LANES ON U.S. 62 AND COMMERCE BLVD. AND THE INSTALLATION OF A MAST ARM TRAFFIC SIGNAL.

PROJECT EARTH DISTURBED AREA: 0.98 ACRES
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA: 0.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (NOI NOT REQUIRED)

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

APPROVED _____
DATE 2/14/12 DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE 2-21-12 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E110496
PID NO. 89542
CONSTRUCTION PROJECT NO
RAILROAD INVOLVEMENT NONE
LIC-62-5.17
1/45

ELEVATION DATUM

North American Vertical Datum of 1988 (NAVD88)

SOURCE BENCHMARK

MONROE TWP 6 1998
The station is a standard 3 1/4 inch Licking County survey disk set in a poured in place concrete monument 1 inch below the ground surface and stamped with Monroe TWP 6 1998. The station is in the northeast end of the Town of Johnstown being located 0.2 mile northeasterly from the intersection of Johnstown Utica Road (US 62) and Johnstown Alex Road (SR 37) in Johnstown. The station is on the right in front of a house and business "Grove and Sons Custom Silk Screen Printing"

TEMPORARY BENCHMARKS

TBM "A"

Chiseled "X" on the arrow bolt of a fire hydrant located on the southerly side of Johnstown Utica Road (US 62) between the northerly and southerly drive entrance to 451 Coshocton Street

Northing - 785992.9019'
Easting - 1918858.6360'
Elevation - 1154.38'

TBM "B"

Chiseled "X" on the northerly side of a concrete pad for a sanitary lift station located just west of the southwesterly corner of the intersection of Johnstown Utica Road (US 62) and Commerce Blvd.

Northing - 786251.4022'
Easting - 1919350.4294'
Elevation - 1146.25'

TBM "C"

Chiseled "X" on the arrow bolt of a fire hydrant located at the northeasterly corner of the intersection of Johnstown Utica Road (US 62) and Commerce Blvd.

Northing - 786415.7526'
Easting - 1919621.7432'
Elevation - 1152.34'

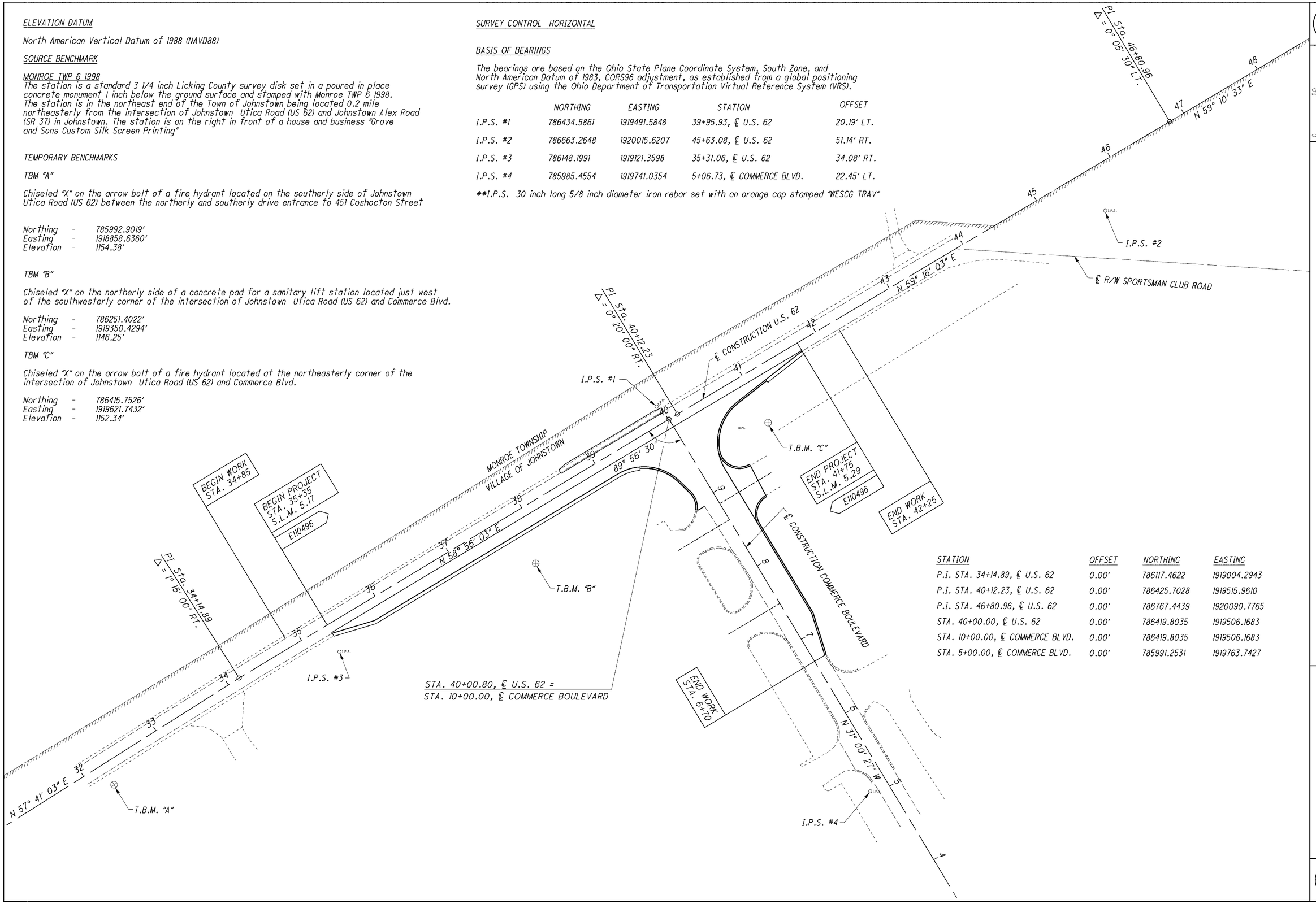
SURVEY CONTROL HORIZONTAL

BASIS OF BEARINGS

The bearings are based on the Ohio State Plane Coordinate System, South Zone, and North American Datum of 1983, CORS96 adjustment, as established from a global positioning survey (GPS) using the Ohio Department of Transportation Virtual Reference System (VRS).

	NORTHING	EASTING	STATION	OFFSET
I.P.S. #1	786434.5861	1919491.5848	39+95.93, ℄ U.S. 62	20.19' LT.
I.P.S. #2	786663.2648	1920015.6207	45+63.08, ℄ U.S. 62	51.14' RT.
I.P.S. #3	786148.1991	1919121.3598	35+31.06, ℄ U.S. 62	34.08' RT.
I.P.S. #4	785985.4554	1919741.0354	5+06.73, ℄ COMMERCE BLVD.	22.45' LT.

**I.P.S. 30 inch long 5/8 inch diameter iron rebar set with an orange cap stamped "WESCG TRAV"



STATION	OFFSET	NORTHING	EASTING
P.I. STA. 34+14.89, ℄ U.S. 62	0.00'	786117.4622	1919004.2943
P.I. STA. 40+12.23, ℄ U.S. 62	0.00'	786425.7028	1919515.9610
P.I. STA. 46+80.96, ℄ U.S. 62	0.00'	786767.4439	1920090.7765
STA. 40+00.00, ℄ U.S. 62	0.00'	786419.8035	1919506.1683
STA. 10+00.00, ℄ COMMERCE BLVD.	0.00'	786419.8035	1919506.1683
STA. 5+00.00, ℄ COMMERCE BLVD.	0.00'	785991.2531	1919763.7427

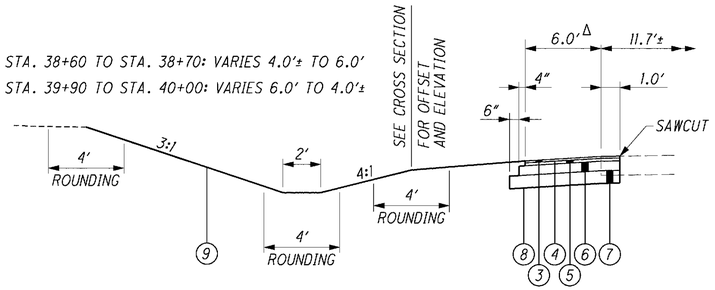
SCHEMATIC PLAN

LIC-62-5.17

CALCULATED LAM
CHECKED LMO

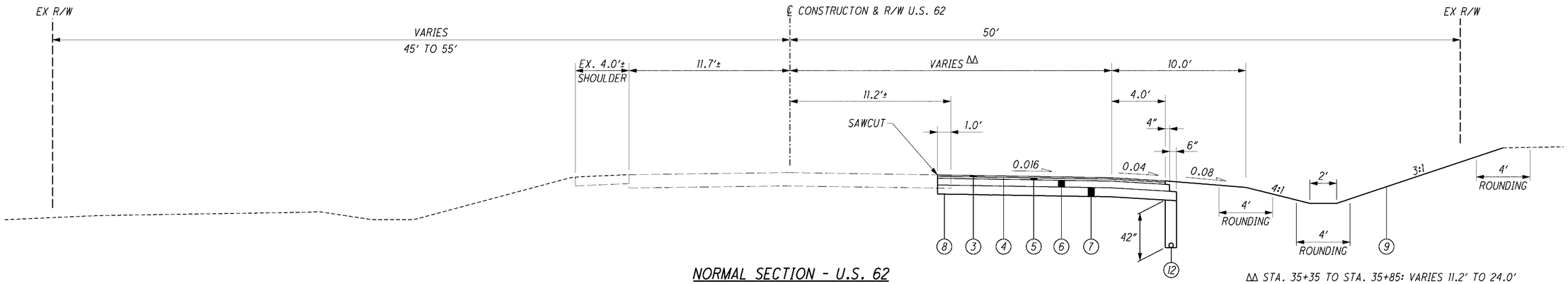
TYPICAL SECTIONS

Δ STA. 38+60 TO STA. 38+70: VARIES 4.0'± TO 6.0'
STA. 39+90 TO STA. 40+00: VARIES 6.0' TO 4.0'±



SHOULDER DETAIL - U.S. 62

STA. 38+60 TO STA. 40+00 LT.

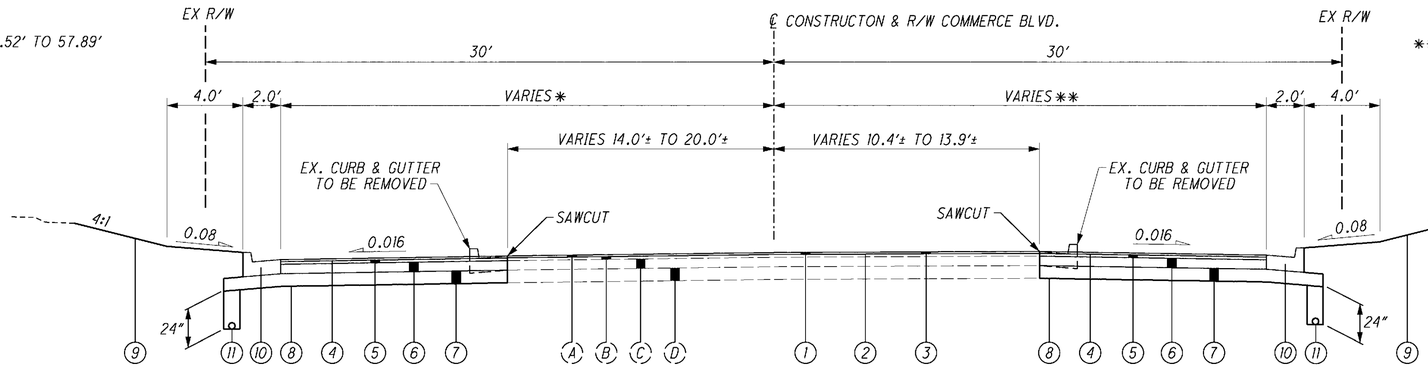


NORMAL SECTION - U.S. 62

STA. 35+35 TO STA. 41+75 = 640.0 FT.

ΔΔ STA. 35+35 TO STA. 35+85: VARIES 11.2' TO 24.0'
STA. 35+85 TO STA. 40+75.37: 24.0'
STA. 40+75.37 TO STA. 41+75: VARIES 24.0' TO 11.1'

* STA. 8+92.14 TO STA. 9+69.73: VARIES 26.52' TO 57.89'



WIDENING LIMITS LT.

STA. 8+91.52 TO STA. 9+69.73

NORMAL SECTION - COMMERCE BOULEVARD

STA. 6+70 TO STA. 9+76 = 306.0 FT.

WIDENING LIMITS RT.

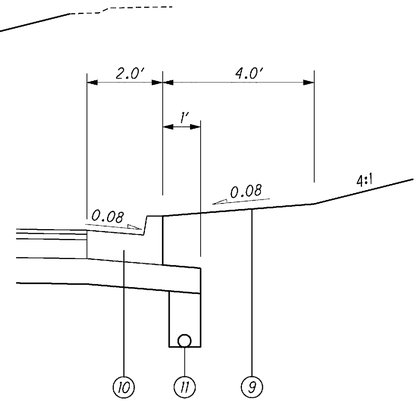
STA. 6+70 TO STA. 9+76

** STA. 6+70 TO STA. 7+20: VARIES 13.9' TO 26.0'
STA. 7+20 TO STA. 9+76: 26.0'

LEGEND

1. ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (1 1/4" DEPTH)
2. ITEM 407 - TACK COAT @ 0.075 GAL/SY
3. ITEM 448 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M
4. ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE @ 0.04 GAL/SY
5. ITEM 448 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22
6. ITEM 301 - 6" ASPHALT CONCRETE BASE, PG64-22
7. ITEM 304 - 8" AGGREGATE BASE
8. ITEM 204 - SUBGRADE COMPACTION
9. ITEM 659 - SEEDING AND MULCHING, CLASS 1
10. ITEM 609 - COMBINATION CURB & GUTTER, TYPE 2
11. ITEM 605 - 4" SHALLOW PIPE UNDERDRAIN
12. ITEM 605 - 4" DEEP PIPE UNDERDRAIN

A. EXIST. 1-1/4" ASPHALT CONCRETE SURFACE COURSE
B. EXIST. 1-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE
C. EXIST. 6" BITUMINOUS AGGREGATE BASE
D. EXIST. 8" AGGREGATE BASE



CURB & GUTTER DETAIL

U.S. 62 - STA. 40+75.37 TO STA. 41+21.56 RT.
COMMERCE BLVD. - STA. 6+70 TO STA. 9+76 RT.

LIC-62-5.17

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

ELECTRIC:
AMERICAN ELECTRIC POWER
850 TECH CENTER DRIVE
GAHANNA, OHIO 43230
(614) 883-6831
CONTACT: PAUL PAXTON

LICKING RURAL ELECTRIFICATION
11339 MT. VERNON ROAD
P.O. BOX 455
UTICA, OHIO 43080-0455
(740) 348-1149
CONTACT: JOHN STRATHMAN

TELEPHONE:
CENTURYLINK
441 WEST BROAD STREET
PATASKALA, OHIO 43062
(740) 927-8282
CONTACT: DEE REED

GAS:
COLUMBIA GAS OF OHIO
3550 JOHNNY APPLESEED CT.
COLUMBUS, OHIO 43231
(614) 818-2106
CONTACT: RANDALL SEKAVEC

CABLE:
TIME WARNER CABLE
3760 INTERCHANGE ROAD
COLUMBUS, OHIO 43204
(614) 255-6340
CONTACT: STEPHEN RAY

WATER, STORM, SANITARY & TRAFFIC SIGNALS:
VILLAGE OF JOHNSTOWN
599 S. MAIN STREET
P.O. BOX 457
JOHNSTOWN, OHIO 43031
(740) 967-4618
CONTACT: JACK LIGGETT

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 6:00 PM AND 7:00 AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLIES IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEET NO. 42 (SHEET NO. 2/5 OF THE RIGHT-OF-WAY PLANS).

ITEM 204, PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

ITEM 204, PROOF ROLLING	2 HOUR

PAVEMENT RESTORATION FOR PIPE INSTALLATIONS

THE FOLLOWING QUANTITY HAS BEEN PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION OF PIPE AT STA. 9+50 COMMERCE BOULEVARD.

ITEM 301, ASPHALT CONCRETE BASE, PG64-22	6 CU YD

THE ABOVE QUANTITY IS BASED ON A 301 THICKNESS OF 8 INCHES AND A PAVEMENT RESTORATION WIDTH THAT INCLUDES THE TRENCH WIDTH PLUS TWO FEET ON EACH SIDE OF THE TRENCH. SEE STANDARD CONSTRUCTION DRAWING DM-1.4 FOR TRENCH WIDTH FORMULA AND CALCULATION.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

PAVEMENT RESTORATION FOR MONUMENT ASSEMBLY INSTALLATIONS

THE FOLLOWING QUANTITY IS PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION OF ITEM 604 MONUMENT ASSEMBLIES.

ITEM 301, ASPHALT CONCRETE BASE, PG64-22	3 CU YD
ITEM 448, ASPHLAT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M	1 CU YD

THE ABOVE QUANTITY IS BASED ON A 301 THICKNESS OF 8 INCHES, A 448 THICKNESS OF 1-¼" AND A WIDTH OF TWO FEET AROUND THE PERIMETER OF THE MONUMENT ASSEMBLIES.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

ITEM SPECIAL - FILL AND PLUG EXISTING CONDUIT

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT AND FILLING THE AREA THUS SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

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

THE FILL MATERIAL SHALL BE PUMPED INTO PLACE, OR PLACED BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT, AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH, SHALL BE FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR SHALL BE 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.

THE LENGTH, MEASURED AS PROVIDED ABOVE, SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

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 LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

UNRECORDED UNTREATED NON-STORMWATER DRAINAGE

FURNISH NO CONTINUANCE FOR ANY UNRECORDED UNTREATED NON-STORMWATER DRAINAGE SUCH AS UNTREATED SEPTIC, UNTREATED WASTEWATER, UNTREATED CURTAIN/GRADIENT DRAINS, AND UNTREATED FOUNDATION FLOOR DRAINS DISTURBED BY THE WORK. PLUG ANY UNRECORDED UNTREATED NON-STORMWATER DRAINAGE WITH CLASS C CONCRETE AT THE RIGHT OF WAY LINE. PAYMENT FOR PLUGGING SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 OR 203 ITEM.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

UNRECORDED STORM WATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED STORM WATER DRAINAGE, SUCH AS ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEEDED CONDUIT TO REPLACE OR EXTEND AN EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, 707.52 SDR35.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 603, 4" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION	100 FT
ITEM 603, 6" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION	100 FT

CALCULATED LAM
CHECKED LMO

GENERAL NOTES

LIC-62-5.17

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659, SEEDING AND MULCHING, CLASS I	3080 SQ YD
ITEM 659, TOPSOIL	342 CU YD
ITEM 659, REPAIR SEEDING AND MULCHING	154 SQ YD
ITEM 659, INTER-SEEDING	154 SQ YD
ITEM 659, COMMERCIAL FERTILIZER	0.43 TON
ITEM 659, LIME	0.64 ACRES
ITEM 659, WATER	17 M GAL

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL WITHIN THE CONSTRUCTION LIMITS. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

ITEM 204, SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.

2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING. THE EXCAVATION LIMITS ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSUITABLE SUBGRADE. UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05.

   IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.

3. COMPACT THE SUBGRADE ACCORDING TO 204.03.

4. APPROXIMATE LIMITS FOR EXCAVATION OF UNSTABLE SUBGRADE ARE SHOWN AND LABELED ON THE CROSS SECTIONS AS UNSTABLE SUBGRADE. THE ENGINEER WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.

   PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06.

5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF THE PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.

6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06 TO VERIFY STABILITY.

7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

THE QUANTITIES FOR EXCAVATING THE UNSUITABLE SUBGRADE AND UNSTABLE SUBGRADE ARE BOTH PAID UNDER ITEM 204 EXCAVATION OF SUBGRADE.

EROSION CONTROL CALCULATIONS

ITEM 659 - TOPSOIL

3080 SY x (111 CY / 1000 SY) = 342 CU YD

ITEM 659 - REPAIR SEEDING AND MULCHING

3080 SY x 0.05 = 154 SQ YD

ITEM 659 - INTER-SEEDING

3080 SY x 0.05 = 154 SQ YD

ITEM 659 - COMMERCIAL FERTILIZER

3080 SY x (1 TON / 7410 SY) +
154 SY x (1 TON / 11115 SY) = 0.43 TONS

ITEM 659 - LIME

3080 SY x (1 ACRE / 4840 SY) = 0.64 ACRES

ITEM 659 - WATER

(2 x 3080 SY + 154 SY) x
(0.0027 M GAL / 1 SY) = 17 M GAL

UNDERCUT QUANTITY CALCULATIONS

STATION	END AREA (SQ. FT.)		204 EXCAVATION OF SUBGRADE	204 GRANULAR MATERIAL, TYPE B	DESCRIPTION OF UNDERCUT
	CUT	FILL	CU. YD.	CU. YD.	
U.S. 62					
35+35	0	0			
			9	9	36" UNDERCUT
35+50	31	31			
			81	83	36" UNDERCUT
36+00	56	58			
			104	108	36" UNDERCUT
36+50	56	58			
			105	108	36" UNDERCUT
37+00	57	58			
			92	108	36" UNDERCUT
37+50	42	58			
			93	108	36" UNDERCUT
38+00	58	58			
			99	108	36" UNDERCUT
38+50	49	58			
			98	108	36" UNDERCUT
39+00 BACK	57	58			
39+00 AHEAD	28	29			
			62	63	18" UNDERCUT
39+50	39	39			
			43	43	18" UNDERCUT
39+80 BACK	39	39			
39+80 AHEAD	0	0			
			0	0	
40+12 BACK	0	0			
40+12 AHEAD	38	41			
			54	58	18" UNDERCUT
40+50	38	41			
			53	56	18" UNDERCUT
41+00	19	19			
			32	32	18" UNDERCUT
41+50	15	15			
			7	7	18" UNDERCUT
41+75	0	0			
COMMERCE BLVD.					
6+70	0	0			
			7	7	18" UNDERCUT
7+00	13	13			
			32	32	18" UNDERCUT
7+50	21	21			
			39	39	18" UNDERCUT
8+00	21	21			
			37	37	18" UNDERCUT
8+50	19	19			
			34	34	18" UNDERCUT
8+92 BACK	24	24			
8+92 AHEAD	35	35			
			10	10	18" UNDERCUT
9+00	35	35			
			95	95	18" UNDERCUT
9+50 BACK	67	67			
9+50 AHEAD	0	0			
TOTALS CARRIED TO GENERAL SUMMARY			1186	1253	

CALCULATED LAM
CHECKED LMO

GENERAL NOTES

LIC-62-5.17

ITEM 614, MAINTAINING TRAFFIC

ONE LANE OF TRAFFIC IN EACH DIRECTION ON US-62 AND COMMERCE BLVD. SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT AND THE COMPLETED PAVEMENT.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

PLACEMENT OF ASPHALT CONCRETE

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH CONES OR BARRICADES AT ALL TIMES. SUBGRADE UNDERCUT AND BACKFILL, AND PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 1-1/4" INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER	8 M. GAL

SIGNS/SIGN SUPPORTS

TEMPORARY SIGN INSTALLATIONS SHALL BE IN ACCORDANCE WITH PLAN: CONFORMANCE OF WORK ZONE DEVICES TO NCHRP 350.

TEMPORARY SIGN SUPPORTS SHALL BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MT-105.10.

PAYMENT FOR THE SIGNS/SIGN SUPPORT SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

WORK ZONE MARKINGS AND SIGNS

THE CONTRACTOR MUST HAVE ALL WORK ZONE MARKINGS AND SIGNS IN PLACE PRIOR TO ALLOWING TRAFFIC TO UTILIZE ANY NEW OR MILLED PAVEMENT AREAS.

WORK ZONE CENTER LINE, CLASS II SHALL BE APPLIED FOR THE TIME BETWEEN COMPLETION OF THE SURFACE COURSE AND APPLICATION OF THE PERMANENT PAVEMENT MARKINGS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS AND SIGNS PER THE REQUIREMENTS OF CMS 614.04 AND 614.11.

ITEM 614, WORK ZONE CENTER LINE, CLASS I, 642 PAINT	0.28 MILE
ITEM 614, WORK ZONE CENTER LINE, CLASS II, 642 PAINT	0.19 MILE
ITEM 614, WORK ZONE EDGE LINE, CLASS I, 642 PAINT	0.56 MILE

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC (SECTION 642-2).

DRUMS, CONES AND 42" WEIGHTED CHANNELIZER

DRUMS SHALL BE IN ACCORDANCE WITH CMS ITEM 614, MT SERIES OF THE STANDARD CONSTRUCTION DRAWINGS, AND OMUTCD. CHANNELIZING DEVICES SHALL BE USED TO DELINEATE THE WORK ZONE FROM TRAVELED LANES ACCORDING TO CURRENT STANDARDS.

WHEN USED AT NIGHT, WEIGHTED CHANNELIZERS SHALL ONLY BE PLACED IN THE "TANGENT AREA". THE "TANGENT AREA" IS DEFINED AS THE AREA AFTER THE TRANSITION TAPER WHERE THE WORK TAKES PLACE. DRUMS SHALL BE USED IN THE TRANSITION TAPERS FOR NIGHT OPERATIONS. WEIGHTED CHANNELIZERS SHALL HAVE A MAXIMUM SPACING OF 40 FEET.

THE CONTRACTOR SHALL REPLACE ALL DAMAGED CHANNELIZING DEVICES. ALL DRUMS, CONES AND WEIGHTED CHANNELIZERS SHALL BE IN ACCORDANCE WITH ITEM 614 MAINTAINING TRAFFIC: CONFORMANCE OF WORK ZONE DEVICES TO NCHRP 350. REPLACEMENT OF CHANNELIZING DEVICES SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING DRUMS, CONES AND 42" WEIGHTED CHANNELIZERS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	120 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

SEQUENCE OF CONSTRUCTION

THE FOLLOWING CONSTRUCTION SEQUENCE IS INTENDED TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC WHILE PROVIDING ADEQUATE WORK ZONE SPACE FOR CONSTRUCTION ACTIVITIES.

STAGE 1:

- CONSTRUCT STORM SEWER ALONG SOUTH SIDE OF US-62 (STA. 37+51 TO STA. 41+25 RT.) WHILE MAINTAINING EXISTING TRAFFIC LANES.

- RELOCATE FIRE HYDRANTS AT US-62 STA. 36+78 RT. AND COMMERCE BLVD. STA. 7+23 RT.

- PERFORM PAVEMENT PLANING.

- INSTALL WORK ZONE PAVEMENT MARKINGS, SIGNING AND 42" RETROREFLECTORIZED WEIGHTED CHANNELIZERS ON EXISTING PAVEMENT IN ORDER TO SHIFT US-62 TRAFFIC TO THE NORTH AND REDUCE LANE WIDTHS TO 10' WITHIN LIMITS OF PROPOSED WIDENING FOR RIGHT TURN LANES. UTILIZING 42" RETRO-REFLECTORIZED WEIGHTED CHANNELIZERS ALONG THE WEST SIDE OF COMMERCE BLVD., REDUCE PAVEMENT WIDTH OF COMMERCE BLVD. TO 24' IN ORDER TO ACCOMMODATE CONSTRUCTION OF THE EASTBOUND US-62 RIGHT TURN LANE.

- CONSTRUCT EASTBOUND RIGHT TURN LANE ON US-62 THROUGH THE INTERMEDIATE COURSE, DRAINAGE DITCH AND MISCELLANEOUS SIGNAL ITEMS ALONG THE SOUTH SIDE OF US-62 AND WEST SIDE OF COMMERCE BLVD. (AS PER MT-101.90 - DROP-OFFS IN WORK ZONES)

STAGE 2:

- UTILIZING 42" RETROREFLECTORIZED WEIGHTED CHANNELIZERS ALONG THE EAST SIDE OF COMMERCE BLVD., REDUCE PAVEMENT WIDTH OF COMMERCE BLVD. TO 24' IN ORDER TO ACCOMMODATE CONSTRUCTION OF THE NORTHBOUND RIGHT TURN LANE ON COMMERCE BLVD.

- CONSTRUCT NORTHBOUND RIGHT TURN LANE ON COMMERCE BLVD. THROUGH THE INTERMEDIATE COURSE, DRAINAGE DITCH AND MISCELLANEOUS SIGNAL ITEMS ALONG THE EAST SIDE OF COMMERCE BLVD. AND SOUTH SIDE OF US-62. (AS PER MT-101.90 - DROP-OFFS IN WORK ZONES)

STAGE 3:

- INSTALL WORK ZONE PAVEMENT MARKINGS, SIGNING AND 42" RETROREFLECTORIZED WEIGHTED CHANNELIZERS ON EXISTING PAVEMENT IN ORDER TO SHIFT US-62 TRAFFIC TO THE SOUTH AND REDUCE LANE WIDTHS TO 10' WITHIN LIMITS OF PROPOSED SHOULDER RECONSTRUCTION AND REGRADING ALONG THE NORTH SIDE OF US-62.

- CONSTRUCT PAVED SHOULDER THROUGH THE INTERMEDIATE COURSE, DRAINAGE DITCH AND MISCELLANEOUS SIGNAL ITEMS ALONG THE NORTH SIDE OF US-62. (AS PER MT-101.90 - DROP-OFFS IN WORK ZONES)

STAGE 4:

- COMPLETE INSTALLATION OF TRAFFIC SIGNAL ITEMS.

- PLACE FINAL SURFACE COURSE, PAVEMENT MARKINGS AND SIGNING OVER ENTIRE PROJECT.

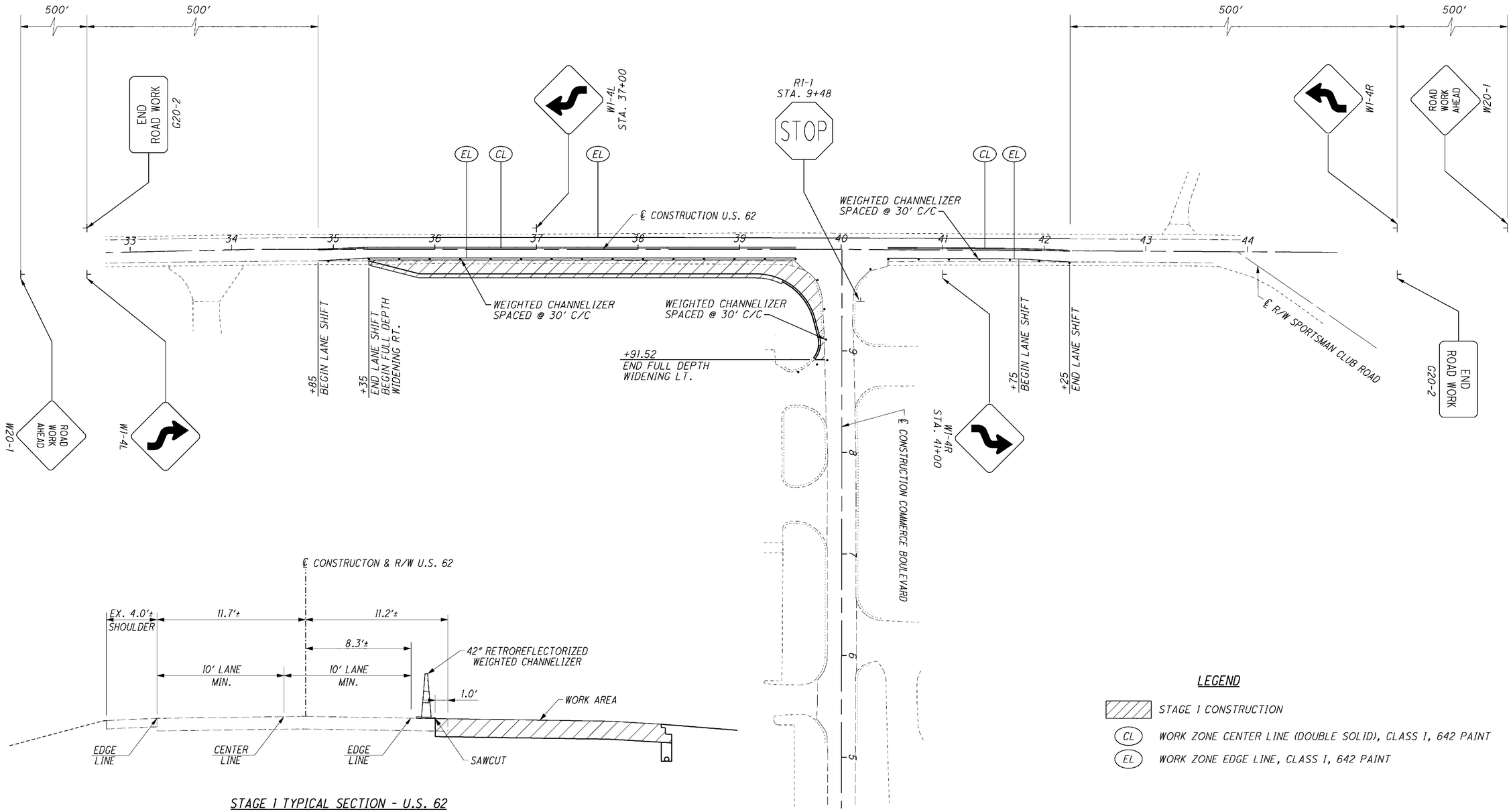
- COMPLETE FINAL GRADING AND SEEDING OPERATIONS.

- ACTIVATE TRAFFIC SIGNAL.

CALCULATED LMO CHECKED KJG

MAINTENANCE OF TRAFFIC NOTES

LIC-62-5.17



STAGE 1 TYPICAL SECTION - U.S. 62

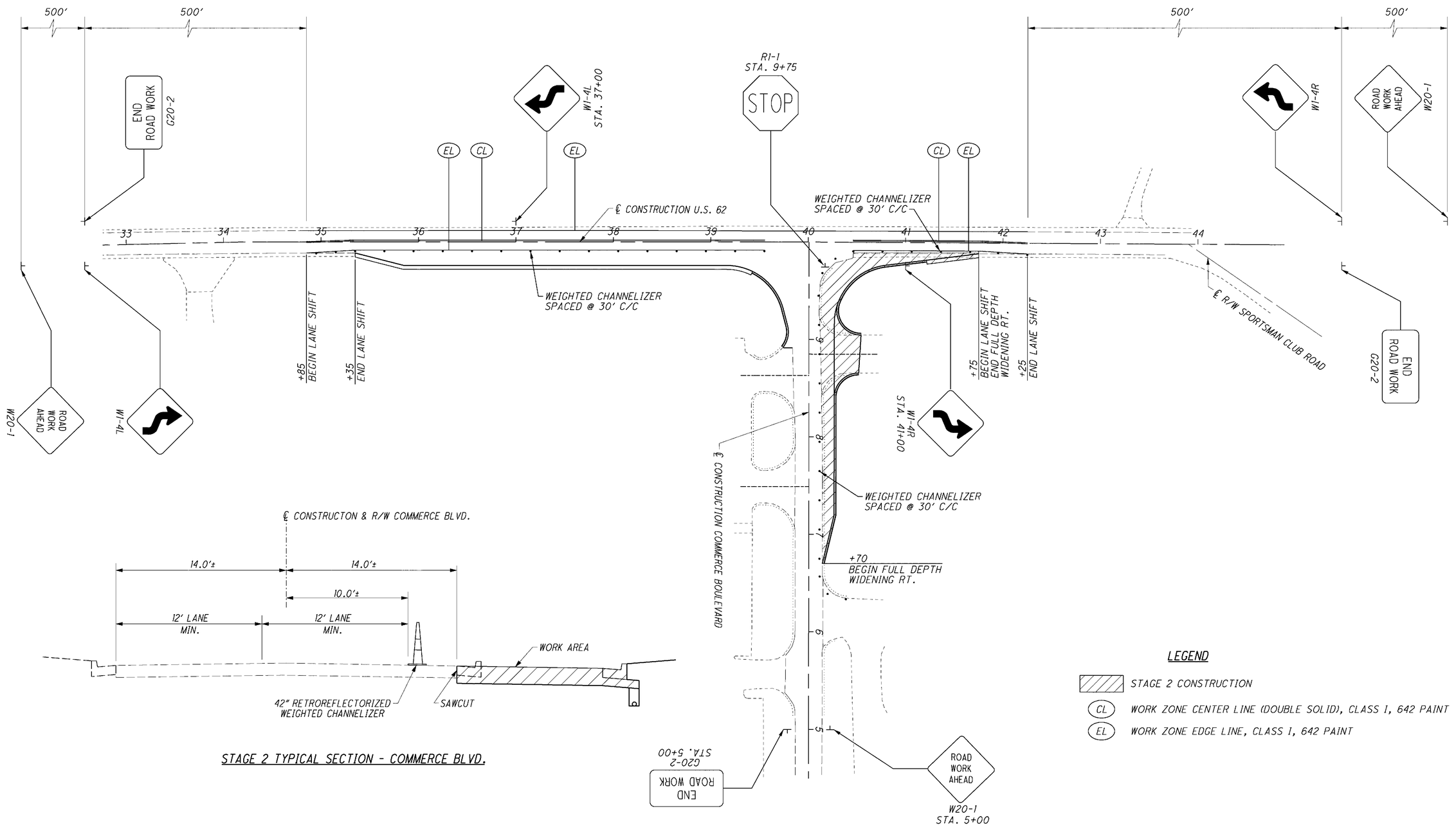
LEGEND

- STAGE 1 CONSTRUCTION
- (CL) WORK ZONE CENTER LINE (DOUBLE SOLID), CLASS I, 642 PAINT
- (EL) WORK ZONE EDGE LINE, CLASS I, 642 PAINT

HORIZONTAL SCALE IN FEET
0 25 50 100

MAINTENANCE OF TRAFFIC - STAGE 1

LIC-62-5.17



STAGE 2 TYPICAL SECTION - COMMERCE BLVD.

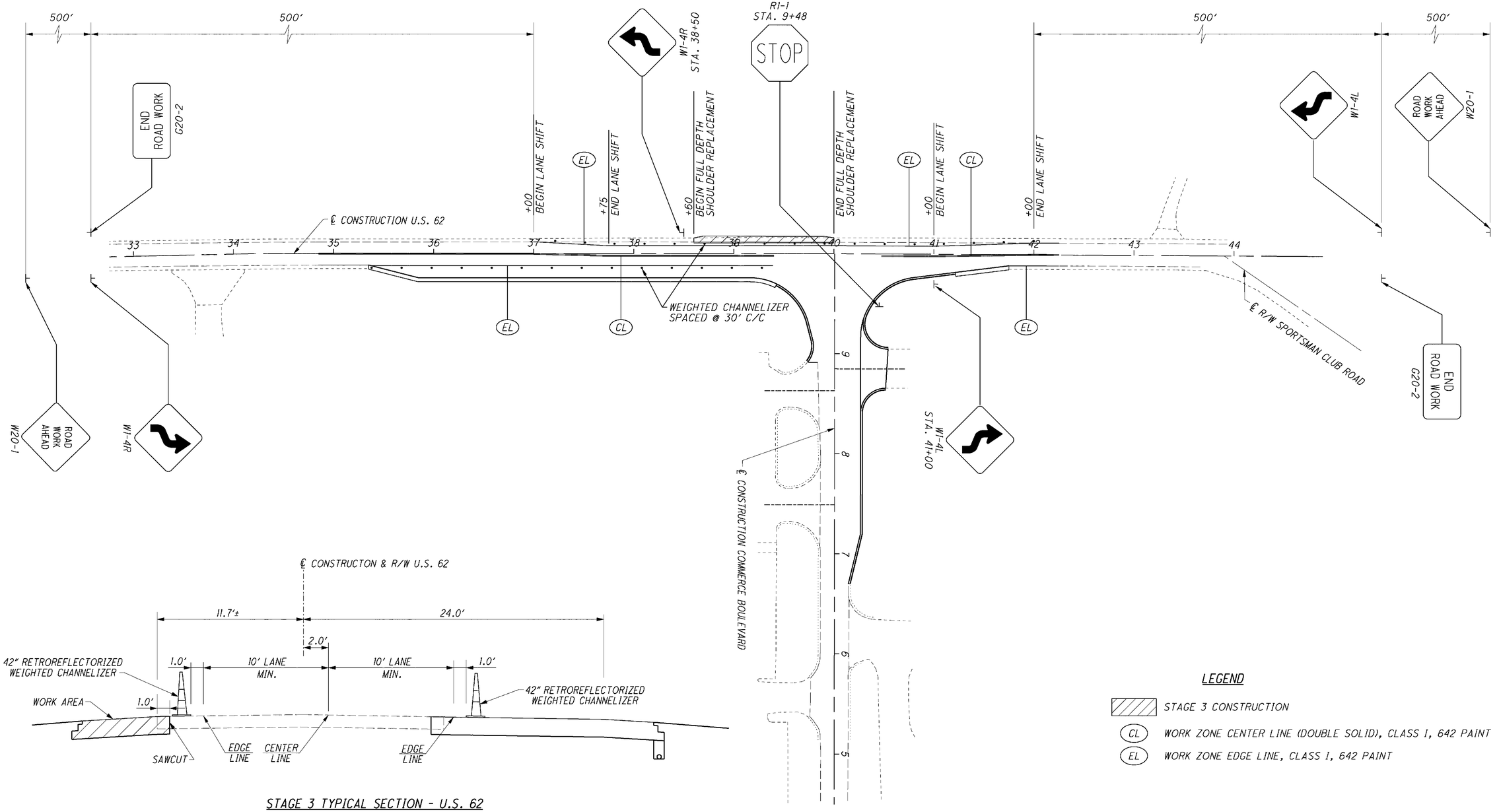
LEGEND

- STAGE 2 CONSTRUCTION
- (CL) WORK ZONE CENTER LINE (DOUBLE SOLID), CLASS I, 642 PAINT
- (EL) WORK ZONE EDGE LINE, CLASS I, 642 PAINT

HORIZONTAL SCALE IN FEET
0 25 50 100

MAINTENANCE OF TRAFFIC - STAGE 2

LIC-62-5.17



STAGE 3 TYPICAL SECTION - U.S. 62

LEGEND

- STAGE 3 CONSTRUCTION
- (CL) WORK ZONE CENTER LINE (DOUBLE SOLID), CLASS I, 642 PAINT
- (EL) WORK ZONE EDGE LINE, CLASS I, 642 PAINT

HORIZONTAL SCALE IN FEET
0 25 50 100

MAINTENANCE OF TRAFFIC - STAGE 3

LIC-62-5.17

SHEET NUMBER													OFFICE CALCS.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
4	5		13	14		25	27				42								
																		ROADWAY	
LUMP														201	11000	LUMP		CLEARING AND GRUBBING	4
			391											202	32500	391	FT	CURB AND GUTTER REMOVED	
			244											202	35100	244	FT	PIPE REMOVED, 24" AND UNDER	
			3											202	58100	3	EACH	CATCH BASIN REMOVED	
			111											SPECIAL	20270000	111	FT	FILL AND PLUG EXISTING CONDUIT	4
						1570								203	10000	1570	CU YD	EXCAVATION	
						366								203	20000	366	CU YD	EMBANKMENT	
							147						1885	204	10000	2032	SQ YD	SUBGRADE COMPACTION	
	1186													204	13000	1186	CU YD	EXCAVATION OF SUBGRADE	
	1253													204	30010	1253	CU YD	GRANULAR MATERIAL, TYPE B	
2														204	45000	2	HOUR	PROOF ROLLING	
													1755	204	50000	1755	SQ YD	GEOTEXTILE FABRIC	
											3			604	38500	3	EACH	MONUMENT ASSEMBLY	
											2			604	40520	2	EACH	RIGHT-OF-WAY MONUMENT	
																		EROSION CONTROL	
	342													659	00300	342	CU YD	TOPSOIL	
	3080													659	00500	3080	SQ YD	SEEDING AND MULCHING, CLASS 1	
	154													659	14000	154	SQ YD	REPAIR SEEDING AND MULCHING	
	154													659	15000	154	SQ YD	INTER-SEEDING	
	0.43													659	20000	0.43	TON	COMMERCIAL FERTILIZER	
	0.64													659	31000	0.64	ACRE	LIME	
	17													659	35000	17	M GAL	WATER	
														832	30000	13000	EACH	EROSION CONTROL	
																		DRAINAGE	
				0.33										602	20000	0.33	CU YD	CONCRETE MASONRY	
100														603	00400	100	FT	4" CONDUIT, TYPE E FOR DRAINAGE CONNECTION	
				70										603	00410	70	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
100														603	01400	100	FT	6" CONDUIT, TYPE E FOR DRAINAGE CONNECTION	
				30										603	01400	30	FT	6" CONDUIT, TYPE E, 707.32	
				75										603	07400	75	FT	18" CONDUIT, TYPE B	
				199										603	07600	199	FT	18" CONDUIT, TYPE C	
				8										603	09100	8	FT	21" CONDUIT, TYPE C	
				101										603	10600	101	FT	24" CONDUIT, TYPE C	
				15										603	16600	15	FT	36" CONDUIT, TYPE C	
				2										604	00800	2	EACH	CATCH BASIN, NO. 3A	
				1										604	04900	1	EACH	CATCH BASIN, NO. 2-3	
				1										604	05300	1	EACH	CATCH BASIN, NO. 2-4	
				361										605	05100	361	FT	4" SHALLOW PIPE UNDERDRAINS	
				338										605	05150	338	FT	4" DEEP PIPE UNDERDRAINS	
				197										605	05200	197	FT	4" UNCLASSIFIED PIPE UNDERDRAINS	

CALCULATED LMO
CHECKED KJG

GENERAL SUMMARY

LIC-62-5.17

SHEET NUMBER													OFFICE CALCS.	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
4			13			27	28	29											
																		PAVEMENT	
													1116	254	01000	1116	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE	
9													284	301	46000	293	CU YD	ASPHALT CONCRETE BASE, PG64-22	
						21								301	48000	21	CU YD	ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)	
													420	304	20000	420	CU YD	AGGREGATE BASE	
													84	407	10000	84	GAL	TACK COAT	
													67	407	14000	67	GAL	TACK COAT FOR INTERMEDIATE COURSE	
													82	448	46050	82	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
1													97	448	46904	98	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M	
						6								448	48020	6	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)	
			450											609	12000	450	FT	COMBINATION CURB AND GUTTER, TYPE 2	
																		WATER WORK	
			1											SPECIAL	63865400	1	EACH	VALVE BOX ADJUSTED TO GRADE (COL. 807)	
			2											SPECIAL	63866700	2	EACH	FIRE HYDRANT, RELOCATED (COL. 809)	
																		SANITARY SEWER	
			1											604	35500	1	EACH	MANHOLE RECONSTRUCTED TO GRADE	
																		TRAFFIC CONTROL	
								67						630	03100	67	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
								13						630	08520	13	FT	STREET NAME SIGN SUPPORT, NO. 3 POST	
								35						630	80100	35	SQ FT	SIGN, FLAT SHEET	
								2						630	80500	2	EACH	SIGN, DOUBLE FACED, STREET NAME	
			4					6						630	84900	10	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
								1						630	85100	1	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
			5					4						630	86002	9	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
							0.28							644	00100	0.28	MILE	EDGE LINE	
							0.19							644	00300	0.19	MILE	CENTER LINE	
							538							644	00400	538	FT	CHANNELIZING LINE	
							76							644	00500	76	FT	STOP LINE	
							7							644	01300	7	EACH	LANE ARROW	
							3							644	01410	3	EACH	WORD ON PAVEMENT, 96"	

CALCULATED LMO
CHECKED KJG

GENERAL SUMMARY

LIC-62-5.17

SHEET NUMBER	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
					TRAFFIC SIGNALS	
60	603	00400	60	FT	4" CONDUIT, TYPE E	
76	625	25400	76	FT	CONDUIT, 2", 725.04	
220	625	25500	220	FT	CONDUIT, 3", 725.04	
101	625	29003	101	FT	TRENCH, 24" DEEP, AS PER PLAN	32
173	625	29600	173	FT	TRENCH IN PAVED AREA, TYPE B	
3	625	30706	3	EACH	PULL BOX, 725.08, 24"	
3	625	32001	3	EACH	GROUND ROD, AS PER PLAN	31
6	632	04911	6	EACH	VEHICULAR SIGNAL HEAD, (LED) BLACK, 3 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	32
1	632	04921	1	EACH	VEHICULAR SIGNAL HEAD, (LED) BLACK, 5 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	32
7	632	25000	7	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
318	632	40500	318	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
670	632	40700	670	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
107	632	40900	107	FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG	
2	632	64011	2	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	33
10	632	67200	10	FT	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG	
75	632	69800	75	FT	SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG	
1	632	70001	1	EACH	POWER SERVICE, AS PER PLAN	33
1	632	90400	1	EACH	SIGNALIZATION, MISC.: COMBINATION SIGNAL SUPPORT, 29.25' HIGH, 17.0" BASE,	32
					66' MAST ARM, 42' MAST ARM, 35' LUMINAIRE BRACKET, BLACK, ASSEMBLY	
1	632	90400	1	EACH	SIGNALIZATION, MISC.: COMBINATION SIGNAL SUPPORT, 25' HIGH, 15.0" BASE,	32
					50' MAST ARM, 38' LUMINAIRE BRACKET, BLACK, ASSEMBLY	
1	633	01581	1	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN	33
1	633	67001	1	EACH	CABINET RISER, AS PER PLAN	34
1	633	67101	1	EACH	CABINET FOUNDATION, AS PER PLAN	33
2	633	67201	2	EACH	CONTROLLER WORK PAD, AS PER PLAN	34
1	633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	34
1	816	30001	1	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN	34
					MAINTENANCE OF TRAFFIC	
120	614	11110	120	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	6
0.28	614	21100	0.28	MILE	WORK ZONE CENTER LINE, CLASS I, 642 PAINT	
0.19	614	21500	0.19	MILE	WORK ZONE CENTER LINE, CLASS II, 642 PAINT	
0.56	614	22100	0.56	MILE	WORK ZONE EDGE LINE, CLASS I, 642 PAINT	
8	616	10000	8	M GAL	WATER	
LUMP	614	11000	LUMP		MAINTAINING TRAFFIC	6
	623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
	624	10000	LUMP		MOBILIZATION	

CALCULATED LMO
CHECKED KJG

GENERAL SUMMARY

LIC-62-5.17

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	202 CURB AND GUTTER REMOVED FT	202 PIPE REMOVED, 24" AND UNDER FT	202 CATCH BASIN REMOVED EACH	SPECIAL FILL AND PLUG EXISTING CONDUIT FT			604 MANHOLE RECONSTRUCTED TO GRADE (SAN.) EACH		609 COMBINATION CURB AND GUTTER, TYPE 2 FT		630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL EACH		SPECIAL VALVE BOX ADJUSTED TO GRADE (COL. 807) EACH	SPECIAL FIRE HYDRANT, RELOCATED (COL. 809) EACH			
C1	17-18	8+92	9+70	LT.									90									
C2	17	9+05	41+22	RT.									151									
C3	18	6+70	8+66	RT.									209									
R1	16	37+10	37+52	RT.		43																
R2	16	37+51	37+52	RT.		15																
R3	16	37+52	37+81	RT.		33	1															
R4	16	37+76	38+42	RT.		66																
R5		NOT USED																				
R6	17	39+60	40+33	RT.				73														
R7	17	39+65	40+16	RT.		13	2	38														
R8	17	8+92	9+75	LT.	86																	
R9	17	9+05	9+75	RT.	94																	
R10	17	40+81	41+55	RT.		74																
R11	17	9+07		RT.											1	1						
R12	17	40+90		RT.											1	2						
R13	17	41+36		RT.											1	1						
R14	18	6+70	8+66	RT.	211																	
R15	18	8+63		RT.											1	1						
S1	17	9+34.4		LT.							1											
W1	16	36+78		RT.																1		
W2	17	9+30		RT.														1				
W3	18	7+23		RT.																1		
TOTALS CARRIED TO GENERAL SUMMARY					391	244	3	111			1		450		4	5		1		2		

CALCULATED LMO
CHECKED KJG

ROADWAY SUBSUMMARY

LIC-62-5.17

DRAINAGE SUBSUMMARY

CALCULATED LMO
CHECKED KJG

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	602 CONCRETE MASONRY	603 4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	603 6" CONDUIT, TYPE E, 707.32	603 18" CONDUIT, TYPE B	603 18" CONDUIT, TYPE C	603 21" CONDUIT, TYPE C	603 24" CONDUIT, TYPE C	603 36" CONDUIT, TYPE C	604 CATCH BASIN, NO. 3A	604 CATCH BASIN, NO. 2-3	604 CATCH BASIN, NO. 2-4	605 4" SHALLOW PIPE UNDERDRAINS	605 4" DEEP PIPE UNDERDRAINS	605 4" UNCLASSIFIED PIPE UNDERDRAINS		FOR INFORMATION ONLY 4" x 45° BEND	FOR INFORMATION ONLY 4" x 4" WYE	FOR INFORMATION ONLY 4" END CAP
					CU YD	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	FT	FT	FT		EACH	EACH	EACH
D1	16	37+51.5	37+52	RT.								15			1							
D2	16	37+51.5	37+81	RT.			30															
D3	16-17	37+51.5	38+52.5	RT.							101			1								
D4	17	38+52.5	38+54	RT.						8												
D5	17	38+52.5	39+63.87	RT.					112				1									
D6	17	39+63.87	40+38.95	RT.				75					1									
D7	17	40+38.95	41+25	RT.	0.33				87													
U1	16	35+35	37+51.5	RT.		20											204			1		1
U2	16-17	37+51.5	39+60	RT.		20											134	66		3		1
U3	17	9+03	9+50	LT.		10										40						1
U4	17-18	6+70	9+50	RT.		10										142		131				1
U5	17	40+39	41+75	RT.		10										135				2		1
U6	17	9+07	9+38	RT.												44					1	1
TOTALS CARRIED TO GENERAL SUMMARY					0.33	70	30	75	199	8	101	15	2	1	1	361	338	197				

LIC-62-5.17

PROJECT SITE DESCRIPTION

IMPROVEMENT OF THE INTERSECTION OF U.S. 62 AND COMMERCE BOULEVARD VIA THE ADDITION OF RIGHT TURN LANES ON U.S. 62 AND COMMERCE BOULEVARD AND THE INSTALLATION OF A MAST ARM TRAFFIC SIGNAL.

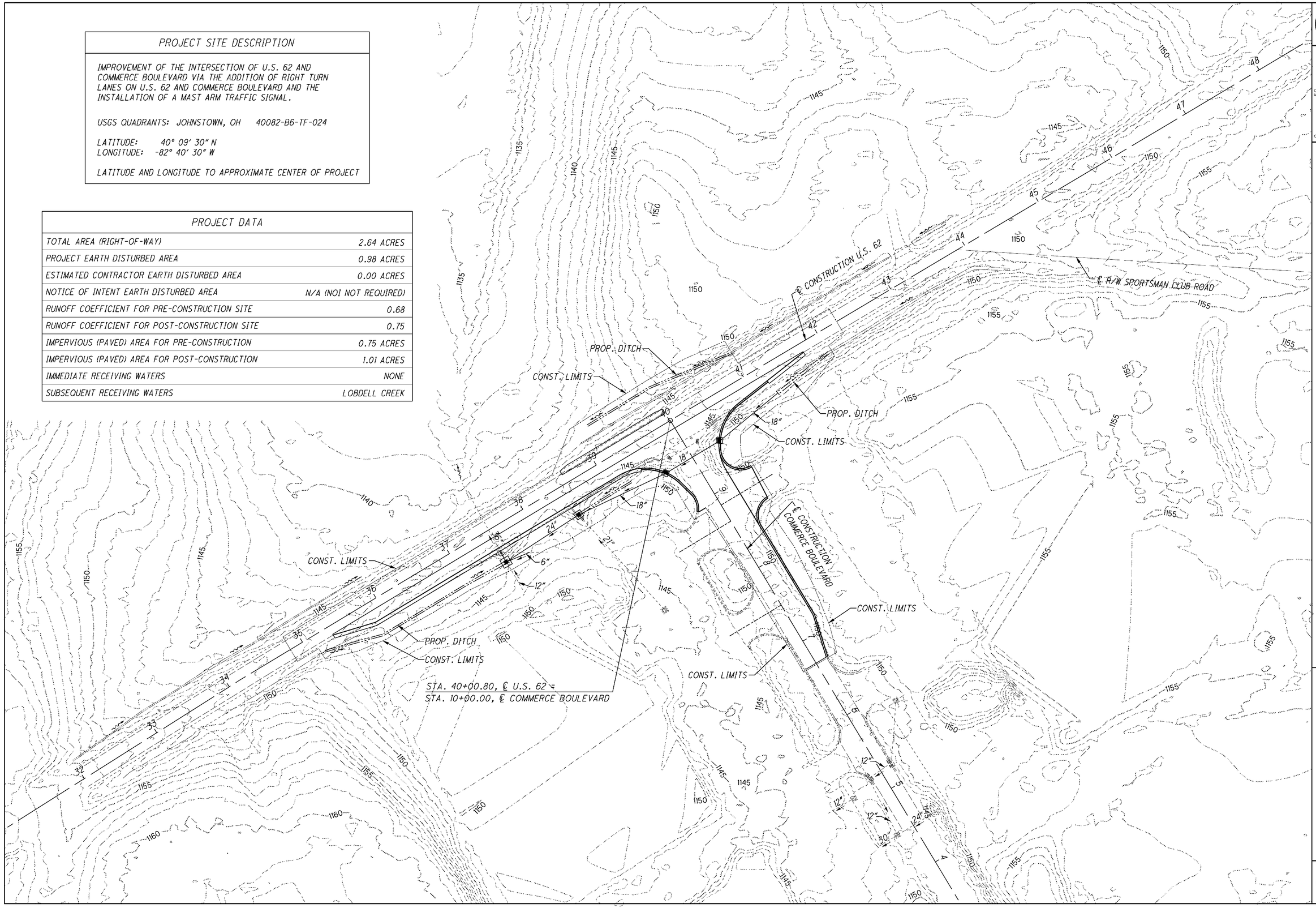
USGS QUADRANTS: JOHNSTOWN, OH 40082-B6-TF-024

LATITUDE: 40° 09′ 30″ N
LONGITUDE: -82° 40′ 30″ W

LATITUDE AND LONGITUDE TO APPROXIMATE CENTER OF PROJECT

PROJECT DATA

TOTAL AREA (RIGHT-OF-WAY)	2.64 ACRES
PROJECT EARTH DISTURBED AREA	0.98 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	0.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA	N/A (NOI NOT REQUIRED)
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.68
RUNOFF COEFFICIENT FOR POST-CONSTRUCTION SITE	0.75
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION	0.75 ACRES
IMPERVIOUS (PAVED) AREA FOR POST-CONSTRUCTION	1.01 ACRES
IMMEDIATE RECEIVING WATERS	NONE
SUBSEQUENT RECEIVING WATERS	LOBDELL CREEK



PROJECT SITE PLAN

LIC-62-5.17

15
45

KARL E. & LINDA C. HARRIS

BRUCE M. & SUSAN L. MICHELSON

FOR ℄ REFERENCES AND BENCH MARKS, SEE SHEET 2
FOR ESTIMATED QUANTITIES, SEE SHEETS 13-14

BEGIN PROJECT STA. 35+35 S.L.M. 5.17

E110496

PI Sta. 34+14.89 Δ = 1° 15' 00" RT.

+85 BEGIN PAVEMENT RESURFACING

+35 BEGIN PAVEMENT WIDENING BEGIN TAPER RT.

MONROE TOWNSHIP
VILLAGE OF JOHNSTOWN

TO REMAIN IN SERVICE

CONST. LIMITS

℄ R/W & CONST. U.S. 62

SEE SHEET 20 FOR PROFILE

MATCH LINE - STA. 38+50, SEE SHEET 17

N 57° 41' 03" E

N 58° 56' 03" E

EX. R/W 45'

EX. R/W 50'

11.2' 11.7'

24"

4'

EX. 12"

EX. 36"

EX. C.B. (TO BE REMOVED)

TO BE RELOCATED BY L.R.E.

36"-C

EX. 24" (TO BE REMOVED)

20'x4"-F

24"-C

6"-C

EX. 6"

4" PMP

I.P.S. #3

10' COLUMBIA GAS EASEMENT

BEGIN WORK STA. 34+85

+85 END TAPER RT.

25' VILLAGE OF JOHNSTOWN WATER & SEWER EASEMENT

60' VILLAGE OF JOHNSTOWN WATER & SEWER EASEMENT

CONST. LIMITS

TO REMAIN IN SERVICE

T.B.M. 'B'

EX. SANITARY LIFT

TMP

W1 U1 U2 R1 R2 R3 R4 D1 D2 D3

CDM CAPITAL ASSET GROUP, INC.

H&H PROPERTIES, LLC

EXISTING PROFILE

PROPOSED PROFILE

+85 BEGIN PAVEMENT RESURFACING

+35 BEGIN PAVEMENT WIDENING

PROP. OB-2-4
STA. 37+51.5, 42.5' RT.
T/G EL. = 1142.0
E DITCH = 1142.4
INV. EX. 12" S = 1137.2±
INV. 4" W/E 1138.92
INV. 6" E = 1138.80
INV. 24" E = 1137.51
INV. 36" N = 1137.09

EX. 4" PMP

EX. 4" SAN.

EX. 12"W

4" UNDERDRAIN RT.

101' - 24" TYPE C @ 1.00%

EX. 8" SAN.

EX. LIFT STATION

+37 INV. 4" 1139.72

+66 INV. 4" 1139.72

1,155 1,150 1,145 1,140 1,135 1,130

1,151.57 1,150.47 1,149.40 1,148.56 1,147.75 1,147.00 1,146.24 1,145.68 1,145.36 1,145.21 1,145.24 1,145.51

33 34 35 36 37 38

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED KJG

PLAN AND PROFILE - U.S. 62
STA. 33+00 TO STA. 38+50

LIC-62-5.17

16
45

STA. 40+00.80, ℄ U.S. 62 =
STA. 10+00.00, ℄ COMMERCE BLVD.

BEGIN FULL DEPTH SHOULDER REPLACEMENT

+60

+70

+00 END FULL DEPTH SHOULDER REPLACEMENT

+90

PI Sta. 40+12.23
Δ = 0° 20' 00" RT.

PROP. SIGNAL POLE

CONST. LIMITS

END PROJECT
STA. 41+75
S.L.M. 5.29

E110496

END WORK
STA. 42+25

BRUCE M. & SUSAN L. MICHELSON

MONROE TOWNSHIP

VILLAGE OF JOHNSTOWN

Ex SH

4'

6'

I.P.S. #1

55' EX. R/W

℄ R/W & CONST. U.S. 62

EX. 12"

11.7±

11.1±

N 58° 56' 03" E

89° 56' 30"

N 59° 16' 03" E

39 40 41 42 43 44

SPORTSMAN CLUB ROAD

MATCH LINE - STA. 38+50, SEE SHEET 16

PROP. TRAFFIC CONTROLLER & SIGNAL POLE

TO BE RELOCATED BY L.R.E.

24'

+75.37

18.02'

EX. 12" (TO BE REMOVED)

EX. ELEC. TRANSFORMERS TO BE RELOCATED BY L.R.E.

EX. 14"x23"

EX. 12"

G.M. 10'x4"-F

18"-C

4" PMP

10'x4"-F

18"-B

26.36'
+31.08

21.91'
+14.01

N 31°00'27" W

R=60'

R=25'

TMP

T.B.M. "C"

CONST. LIMITS

10' COLUMBIA GAS EASEMENT

EX. 50' R/W

SEE SHEET 20 FOR PROFILE

D3 D5 U2 C1 D6 R6 R7 R9 C2 R10 U5 D4 S1 R8 W2 R11 U3 U6 U4 R12 D7 R13

DO NOT DISTURB

EX. ELEC. TRANSFORMER (DO NOT DISTURB)

TO REMAIN IN SERVICE

EX. 21"

25' VILLAGE OF JOHNSTOWN WATER & SEWER EASEMENT

25' VILLAGE OF JOHNSTOWN WATER & SEWER EASEMENT

EX. PRIVATE SIGN

MATCH LINE - STA. 9+00, SEE SHEET 18

℄ R/W & CONST. COMMERCE BLVD.

+21.56 END CURB & GUTTER RT.

+75 END PAVEMENT WIDENING

+25 END PAVEMENT RESURFACING

FOR ℄ REFERENCES AND BENCH MARKS, SEE SHEET 2
FOR ESTIMATED QUANTITIES, SEE SHEETS 13-14
FOR INTERSECTION DETAILS, SEE SHEET 26
FOR DRIVEWAY DETAILS, SEE SHEET 27

H&H PROPERTIES

TECHNICAL RUBBER CO., INC.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LAM
CHECKED KJG

PLAN AND PROFILE - U.S. 62
STA. 38+50 TO STA. 44+00

LIC-62-5.17

17
45

1,145.51 1,145.97 1,146.56 1,147.15 1,147.86 1,148.44 1,148.82 1,149.06 1,149.31 1,149.60 1,149.79 1,149.64

1,155 1,150 1,145 1,140 1,135 1,130

PROP. CB-2-3
STA. 38+52.5, 39.0' RT.
T/G EL. = 1143.2
F DITCH = 1143.6
INV. 21" S = 1140.62
INV. 18" E = 1139.02
INV. 24" W = 1138.52

PROP. CB 3A
STA. 39+63.87, 49.96' RT.
STA. 9+50, 36.87' LT. (COMMERCE)
T/G EL. = 1146.39
INV. 4" S = 1142.89
INV. 18" W/E = 1140.70

HW-2.1 / 2.2
STA. 41+25, 36.6' RT.
INV. 18" W = 1145.80

EXISTING PROFILE

PROPOSED PROFILE

4" UNCLASSIFIED UNDERDRAIN RT.

EX. 4" PMP

4" UNDERDRAIN RT.

EX. 12"W

87' - 18" TYPE C @ 4.56%

75' - 18" TYPE B @ 1.50%

112' - 18" TYPE C @ 1.50%

+00 RT.
INV. 4" 1140.46

+60 RT.
INV. 4" 1142.73

EX. 8" SAN.

EX. SAN. M.H.
(RECONSTRUCT TO GRADE)
STA. 9+34.4, 33.7' LT.
PROP. T/C EL. = 1147.1
EX. T/C EL. = 1151.28
INV. EX. 8" = 1134.7±

PROP. CB 3A
STA. 40+38.95, 49.88' RT.
STA. 9+50, 37.91' RT. (COMMERCE)
T/G EL. = 1146.35
INV. 4" N/S = 1142.83
INV. 18" W/E = 1141.83

FOR ℄ REFERENCES AND BENCH MARKS, SEE SHEET 2
FOR ESTIMATED QUANTITIES, SEE SHEETS 13-14
FOR INTERSECTION DETAILS, SEE SHEET 26
FOR DRIVEWAY DETAILS, SEE SHEET 27

H&H PROPERTIES, LLC

END WORK STA. 6+70

+49.0 EX. DRIVE (NO WORK)

+63.0 EX. DRIVE (NO WORK)

10' UTILITY EASEMENT

Ex R/W

SAN

3" PMP

CONST. LIMITS

I.P.S. #4

N 31° 00' 27" W

℄ R/W & CONST. COMMERCE BLVD.

TEL

EX. ELEC. TRANSFORMER

10' UTILITY EASEMENT

TMP

R=25'

MATCH LINE - STA. 9+00, SEE SHEET 17

N 58° 56' 03" E

N 59° 16' 03" E

PI Sta. 40+12.23

+70 BEGIN PAVEMENT PLANING & WIDENING BEGIN TAPER RT.

+20 END TAPER RT.

+85.0 39' ASPH.

TECHNICAL RUBBER CO., INC.

EXISTING PROFILE

PROPOSED PROFILE

EX. 3" PMP

EX. 12"W +70 RT. INV. 4" 1146.22

4" UNCLASSIFIED UNDERDRAIN RT.

4" UNDERDRAIN RT.

+00 RT. INV. 4" 1145.69

4" UNDERDRAIN LT.

+03 LT. INV. 4" 1144.27

EX. 8" SAN.

EX. 3" PMP

EX. 12"W

HORIZONTAL SCALE IN FEET

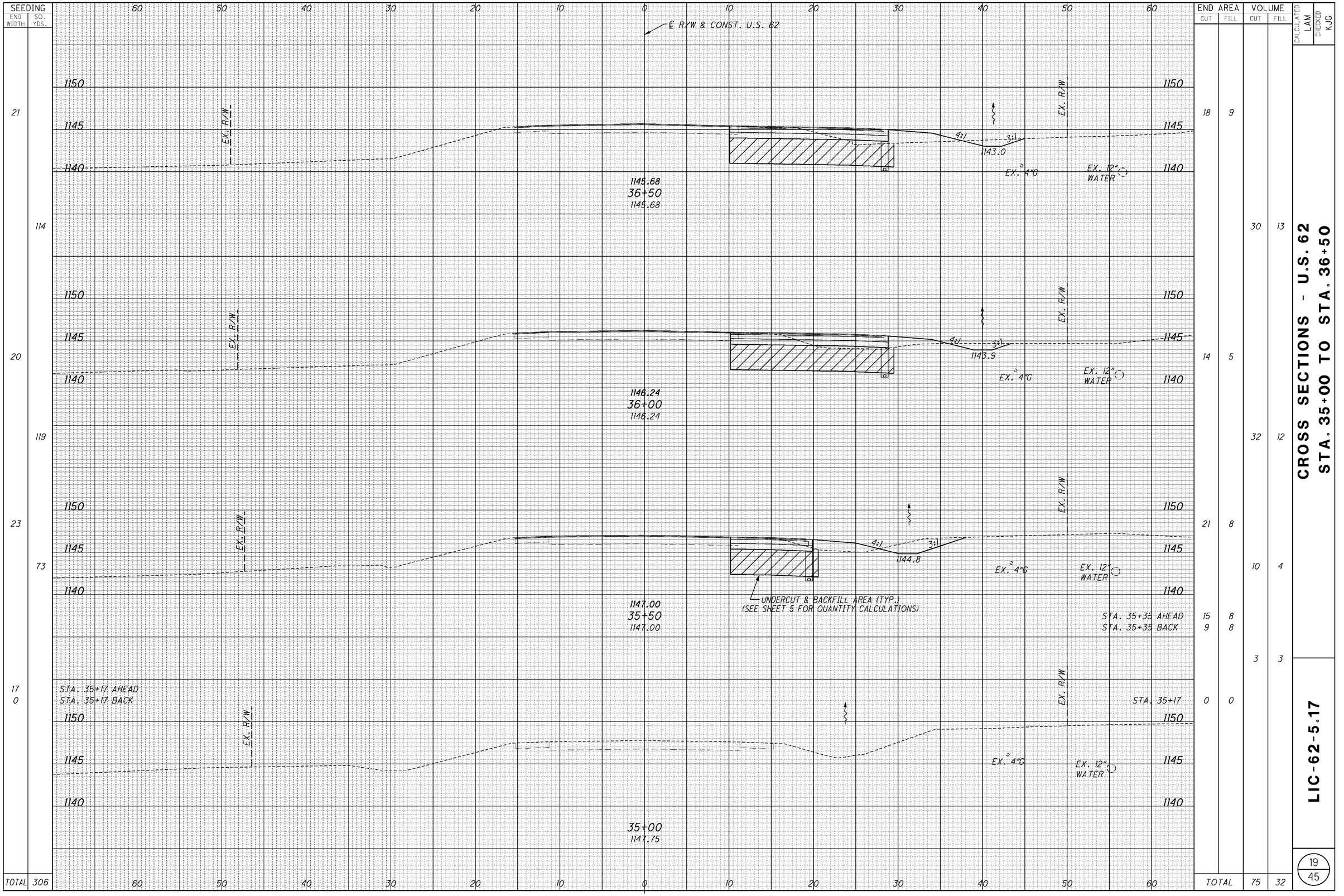
CALCULATED LAM

CHECKED KJG

PLAN AND PROFILE - COMMERCE BOULEVARD STA. 5+00 TO STA. 10+00

LIC-62-5.17

SEEDING END WIDTH	SEEDING SQ. YDS.
21	114
20	119
23	73
17	0
TOTAL	306



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
18	9		
		30	13
14	5		
		32	12
21	8		
		10	4
15	8		
9	8		
		3	3
0	0		
TOTAL		75	32

CALCULATED LAM
CHECKED KJG

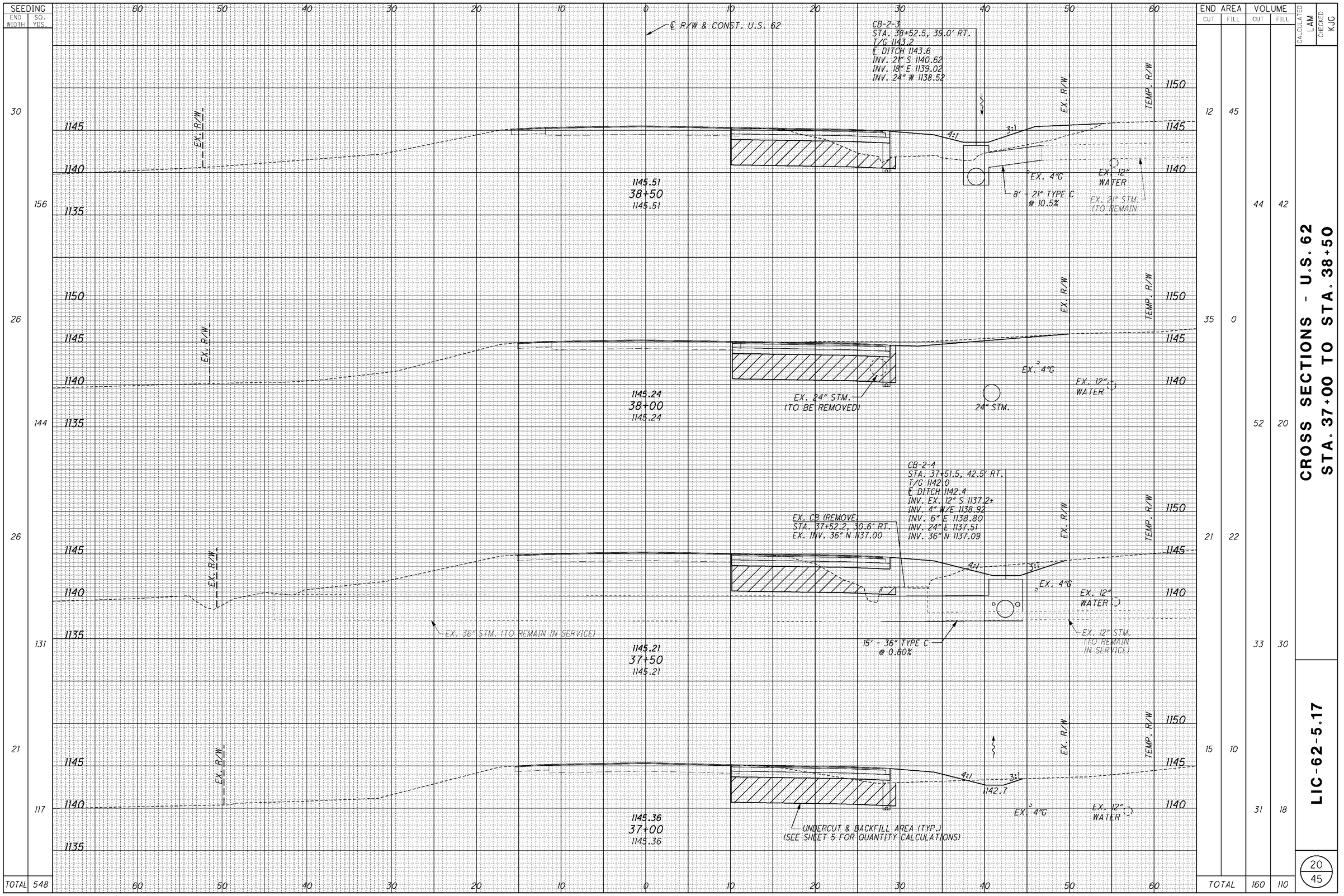
CROSS SECTIONS - U.S. 62
STA. 35+00 TO STA. 36+50

LIC-62-5.17

CROSS SECTIONS - U.S. 62
STA. 37+00 TO STA. 38+50

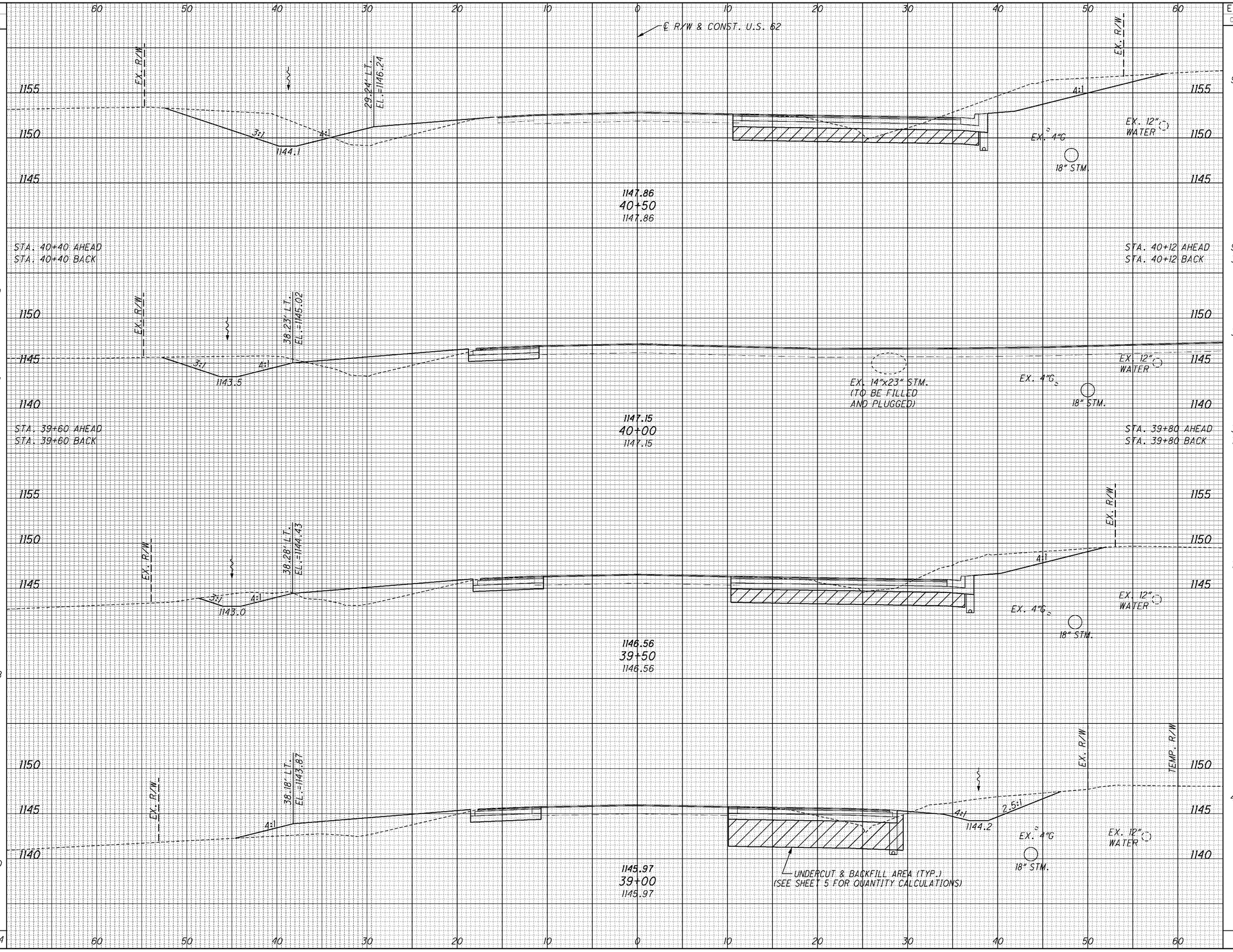
CALCULATED LAM | CHECKED KJG

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
30	156	12	45	44	42
26	144	35	0	52	20
26	131	21	22	33	30
21	117	15	10	31	18
TOTAL	548	TOTAL		160	110



LIC-62-5.17

SEEDING END WIDTH	SEEDING SQ. YDS.
53	
	59
53	
38	
	169
38	
	164
36	
58	
	64
58	
	328
60	
	250
TOTAL	1034



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
94	17		
		132	24
94	17		
32	22		
		14	10
32	22		
		24	16
32	22		
73	22		
		81	24
73	22		
		111	48
47	30		
		55	69
TOTAL		417	191

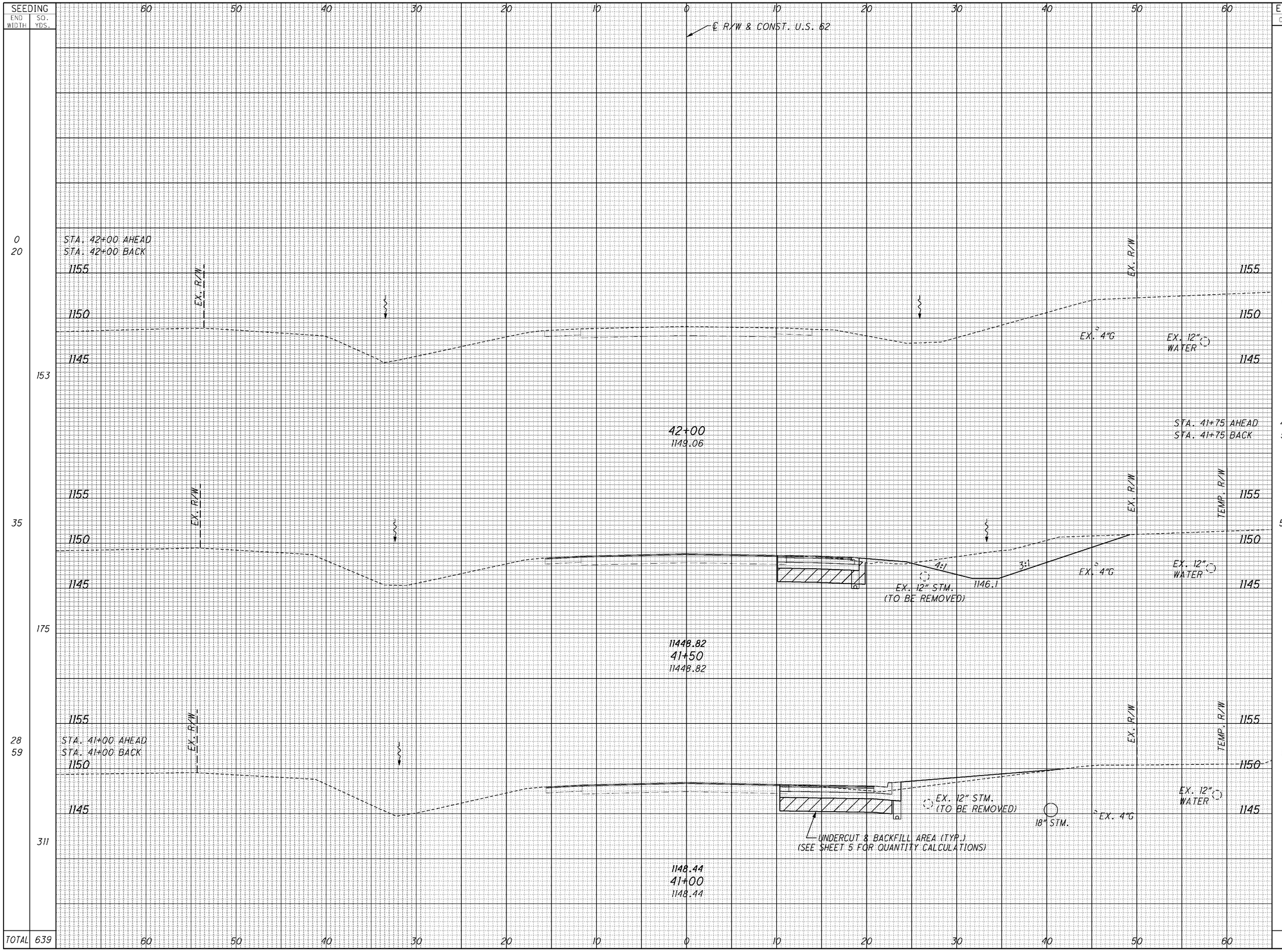
CALCULATED LAM
CHECKED KJG

CROSS SECTIONS - U.S. 62
STA. 39+00 TO STA. 40+50

LIC-62-5.17

21
45

SEEDING END WIDTH	SEEDING SQ. YDS.
0	
20	
	153
35	
	175
28	
59	
	311
TOTAL	639



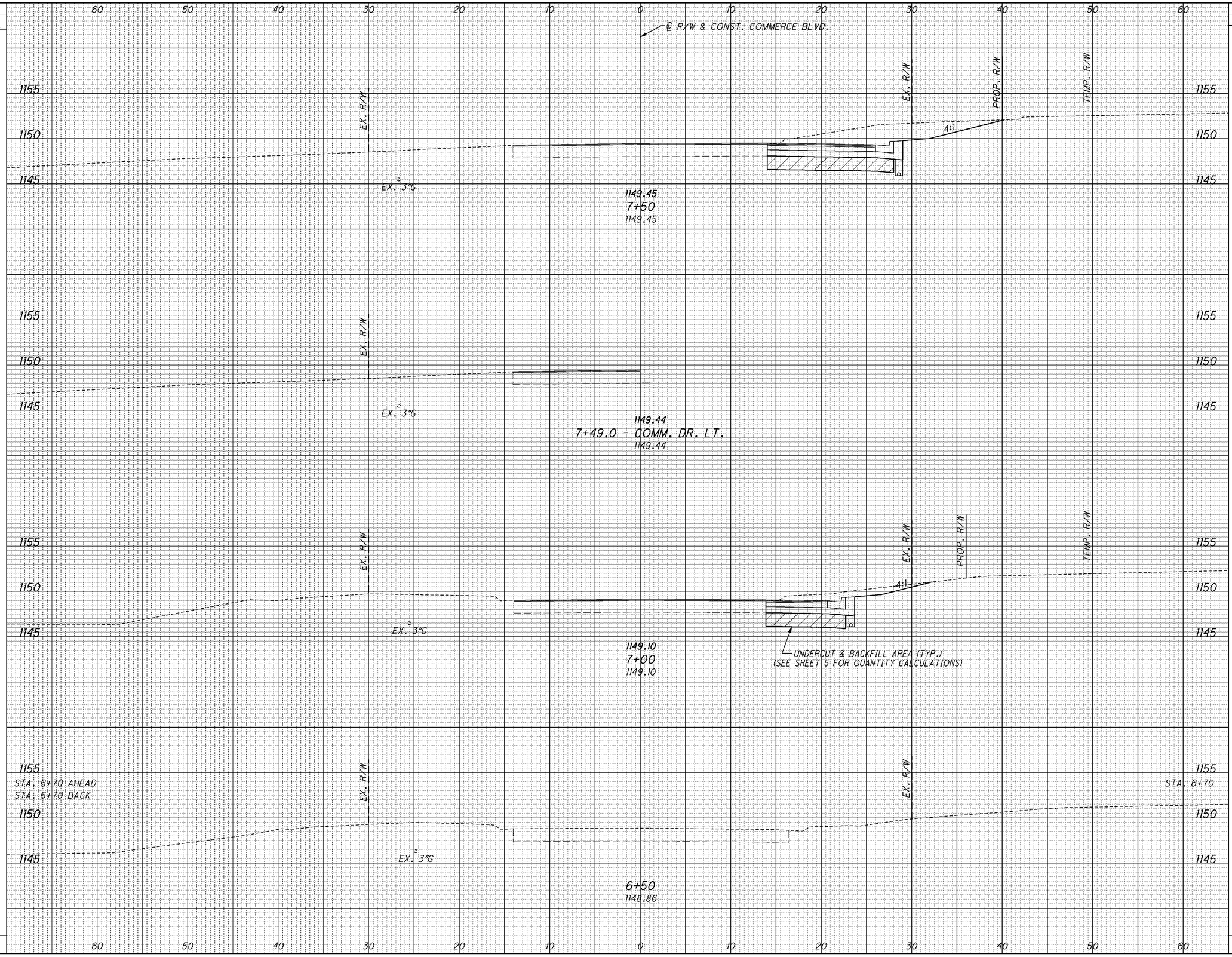
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		20	1
44	2		
51	2		
		50	2
57	2		
		67	8
15	7		
		101	22
TOTAL		238	33

CALCULATED LAM
CHECKED KJG

CROSS SECTIONS - U.S. 62
STA. 41+00 TO STA. 42+00

LIC-62-5.1

SEEDING END WIDTH	SEEDING SQ. YDS.
17	
	83
13	
	38
10	
0	
TOTAL	121



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
54	0		
		72	0
24	0		
		13	0
0	0		
TOTAL		85	0

CALCULATED LAM
CHECKED KJG

CROSS SECTIONS - COMMERCE BOULEVARD
STA. 6+50 TO STA. 7+50

LIC-62.517

SEEDING END WIDTH	SEEDING SQ. YDS.
25	
17	
	-80
	79
17	103
20	103
TOTAL	205

STA. 8+92 AHEAD
STA. 8+92 BACK
ADD FOR DRIVE

℄ R/W & CONST. COMMERCE BLVD.

28.00' RT.
EL. 1148.37
EX. R/W
4.49%
PROP. R/W
52.25' RT.
EL. 1149.46
TEMP. R/W

1148.71
8+85.0 - COMM. DR. RT.
1148.71

EX. 3"G

1149.14
8+63.0 - COMM. DR. LT.
1149.14

1149.37
8+50
1149.37

4:1

1149.66
8+00
1149.66

UNDERCUT & BACKFILL AREA (TYP.)
(SEE SHEET 5 FOR QUANTITY CALCULATIONS)

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
43	0		
30	0		
		47	0
		53	0
38	0	94	0
64	0	109	0
TOTAL		303	0

CALCULATED LAM
CHECKED KJG

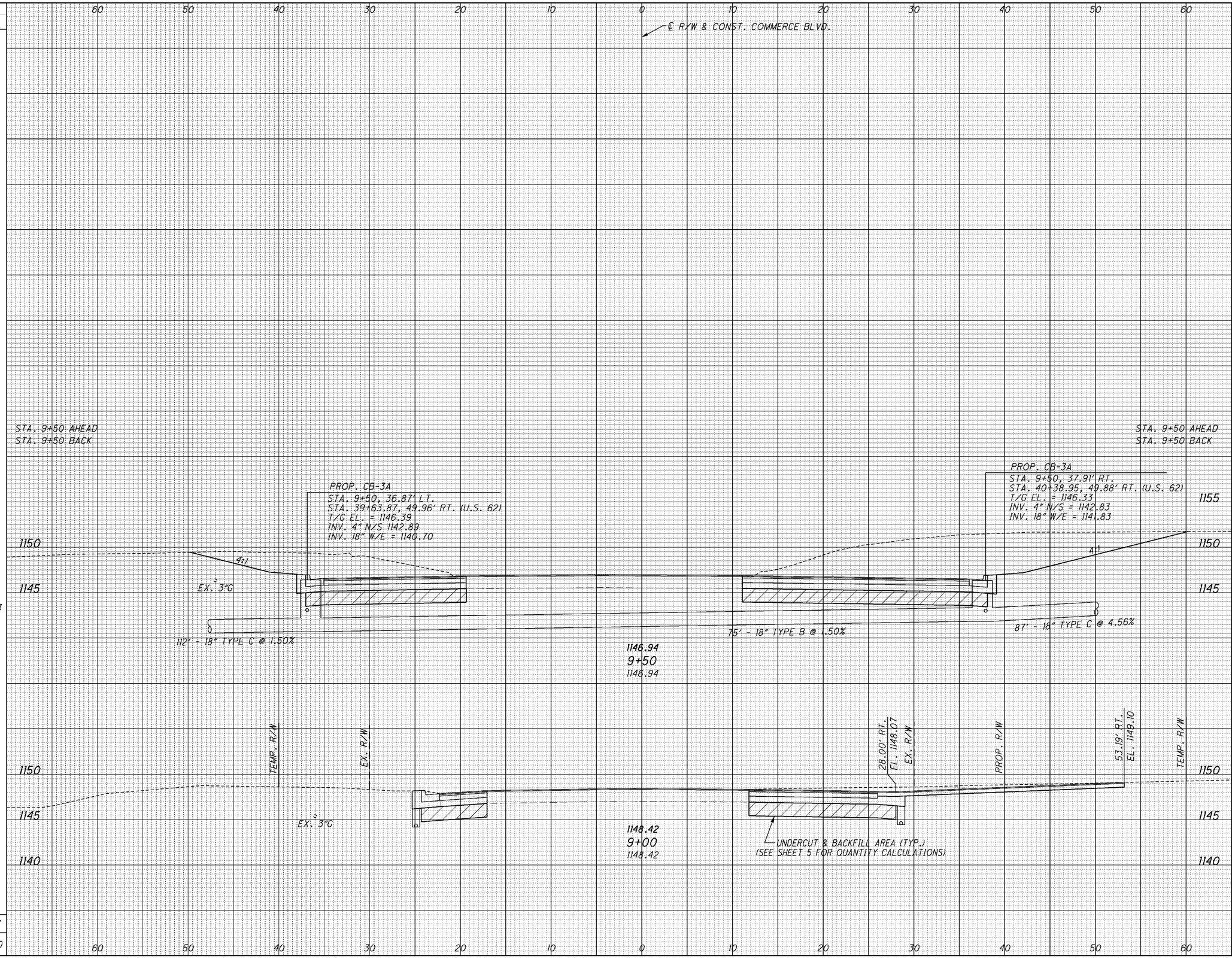
CROSS SECTIONS - COMMERCE BOULEVARD STA. 8+00 TO STA. 8+85.0

LIC-62-5.17

SEEDING END WIDTH	SEEDING SQ. YDS.
0	
45	
	203
	28
	24
TOTAL	227
GRAND TOTAL	3080

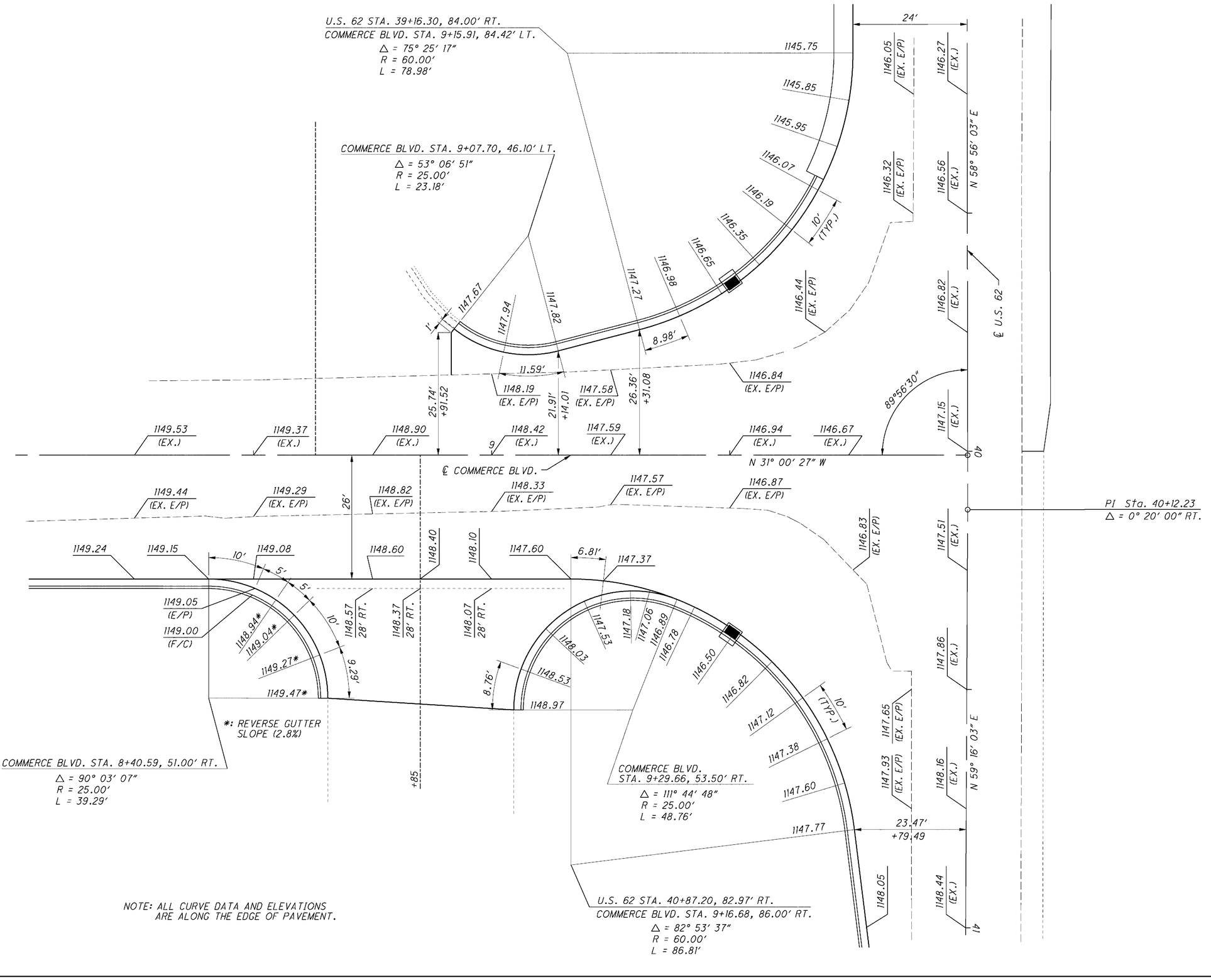
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
258	0		
		279	0
43	0		
		13	0
TOTAL		292	0
GRAND TOTAL		1570	366

CALCULATED LAM
CHECKED KJG



CROSS SECTIONS - COMMERCE BOULEVARD STA. 9+00 TO STA. 9+50

LIC-62-5.17



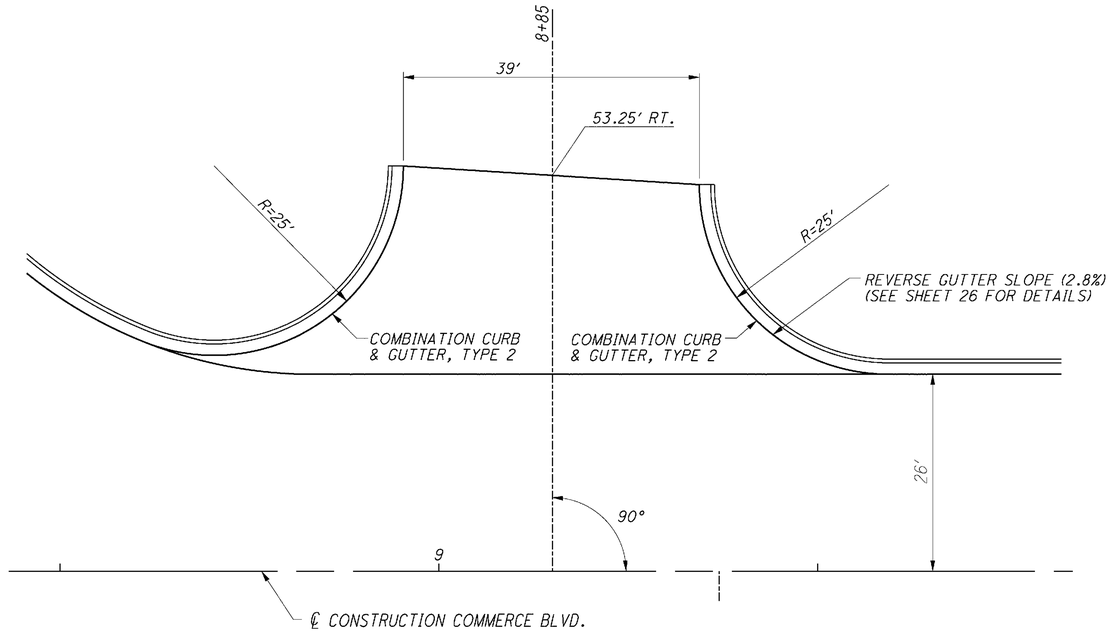
HORIZONTAL SCALE IN FEET
0 5 10 20

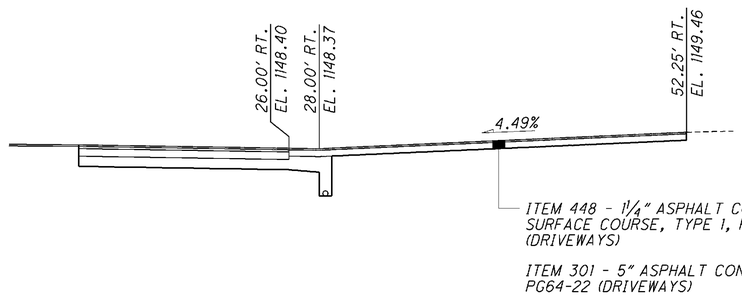
CALCULATED LAM
CHECKED LMO

INTERSECTION DETAIL
U.S. 62 AND COMMERCE BOULEVARD

LIC-62+5.17

DRIVEWAY SUBSUMMARY						
				204	301	448
STATION	SIDE	DRIVE TYPE	DRIVE COMPOSITION	SUBGRADE COMPACTION	ASPHALT CONCRETE BASE, PG64-22 (DRIVEWAYS)	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)
				SQ YD	CU YD	FT
8+85	RT.	COMM.	ASPHALT	147	21	6
TOTALS CARRIED TO GENERAL SUMMARY				147	21	6





COMMMERCE BLVD. - STA. 8+85 RT.

CALCULATED LAM
CHECKED LMO

DRIVEWAY DETAILS

LIC-62-5.17

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	LENGTH	644 EDGE LINE	644 CENTER LINE	644 CHANNELIZING LINE	644 STOP LINE	644 LANE ARROW	644 WORD ON PAVEMENT, 96"
						FT	MILE	MILE	FT	FT	EACH	EACH
30	E	U.S. 62	34+85	42+25	LT.	740	0.14					
30	E	U.S. 62	34+85	42+25	RT.	740	0.14					
30	CL	U.S. 62	34+85	42+25	℄	740		0.14				
30	CL	COMMERCE BLVD.	6+70	9+48	℄	278		0.05				
30	CH	U.S. 62	36+05	39+35	RT.				330			
30	CH	COMMERCE BLVD.	7+40	9+48	RT.				208			
30	ST	U.S. 62	38+86		RT.					12		
30	ST	U.S. 62	39+35		RT.					16		
30	ST	U.S. 62	40+67		LT.					12		
30	ST	COMMERCE BLVD.	9+48		RT.					36		
30	A	U.S. 62	36+41	39+05	RT.						3	
30	A	COMMERCE BLVD.	7+62	9+38	RT.						4	
30	W	U.S. 62	38+17		RT.							1
30	W	COMMERCE BLVD.	8+50		RT.							2
TOTALS CARRIED TO GENERAL SUMMARY							0.28	0.19	538	76	7	3

CALCULATED LMO
CHECKED KJG

PAVEMENT MARKING SUBSUMMARY

LIC-62-5.17

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 3 POST	630 STREET NAME SIGN SUPPORT, NO. 3 POST	630 SIGN, FLAT SHEET	630 SIGN, DOUBLE FACED, STREET NAME	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL							
							FT	FT	SQ FT	EACH	EACH	EACH	EACH							
30	S1	U.S. 62	35+85	RT.	R3-H8bb	30"x30"	13		6.3											
30	S2	U.S. 62	38+63	RT.							2		1							
30	S3	U.S. 62	39+35	RT.	R3-H8bb	30"x30"	13		6.3											
30	S4	U.S. 62	39+35	LT.								1								
30	S5	U.S. 62	40+50	RT.	D3-1	36"x6"		13		1	1		1							
					D3-1	40"x6"				1	1									
30	S6	U.S. 62	41+50	RT.	W2-3	30"x30"	14.5		6.3											
					W16-8	48"x8"			2.7											
30	S7	COMMERCE BLVD.	9+48	RT.							1		1							
30	S8	COMMERCE BLVD.	9+48	RT.	R3-H8bd	30"x30"	13		6.3											
30	S9	COMMERCE BLVD.	7+64	RT.							1		1							
30	S10	COMMERCE BLVD.	7+20	RT.	R3-H8bd	30"x30"	13		6.3											
TOTALS CARRIED TO GENERAL SUMMARY							67	13	35	2	6	1	4							

CALCULATED LMO
CHECKED KJG

SIGNING SUBSUMMARY

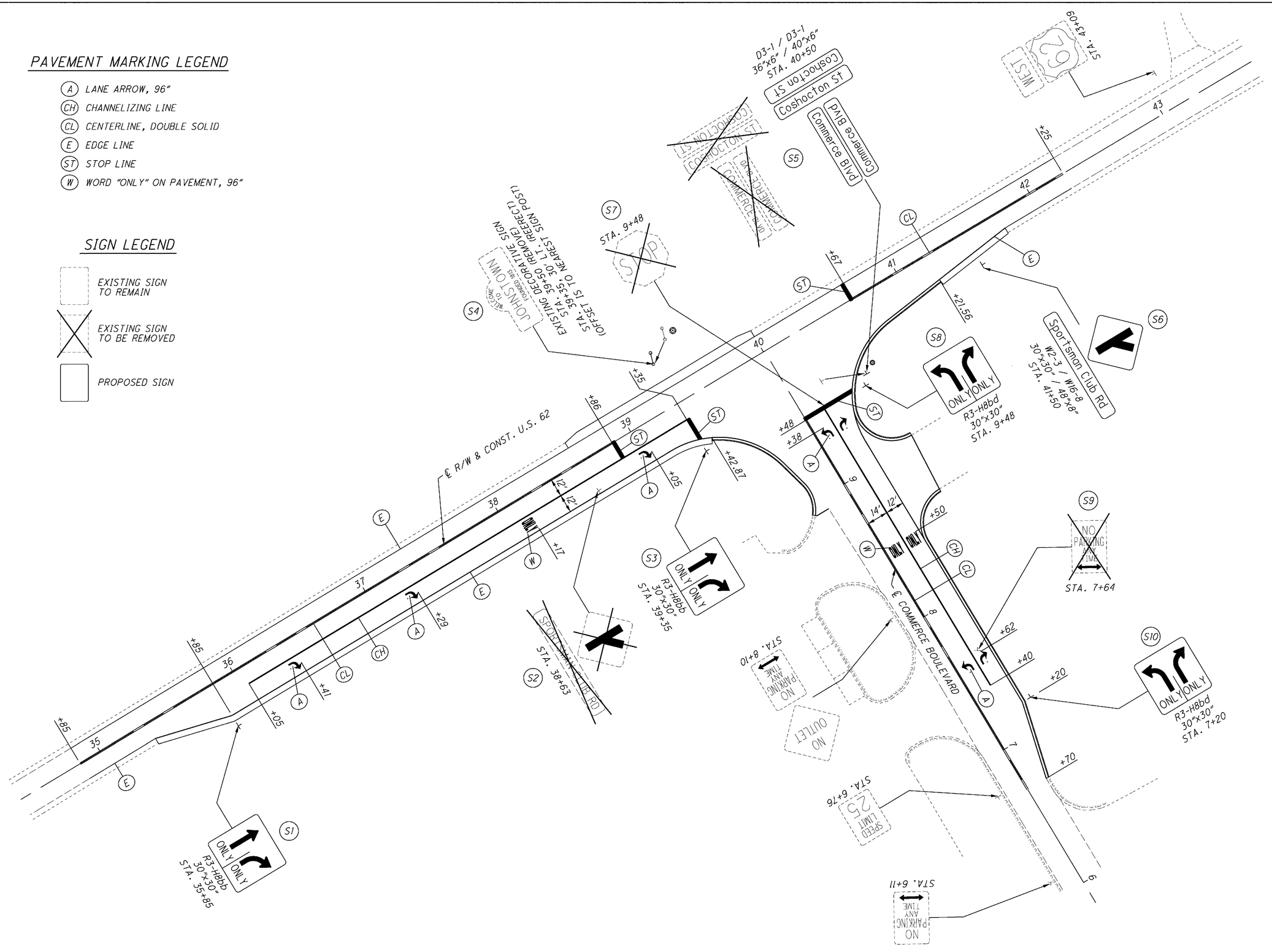
LIC-62-5.17

PAVEMENT MARKING LEGEND

- (A) LANE ARROW, 96"
- (CH) CHANNELIZING LINE
- (CL) CENTERLINE, DOUBLE SOLID
- (E) EDGE LINE
- (ST) STOP LINE
- (W) WORD "ONLY" ON PAVEMENT, 96"

SIGN LEGEND

- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED
- PROPOSED SIGN



HORIZONTAL SCALE IN FEET
0 15 30 60

CALCULATED LAM
CHECKED LMO

PAVEMENT MARKING AND SIGNING PLAN

LIC-62-5.17

30
45

GENERAL

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC CONTROL EQUIPMENT AND MATERIALS IN CONFORMANCE TO THESE PLANS AND SPECIFICATIONS AND THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (2010) AND ALL SUPPLEMENTAL SPECIFICATIONS. BEFORE ANY EQUIPMENT IS ORDERED OR INSTALLATION IS BEGUN, THREE (3) SETS OF A COMPLETE SCHEDULE OF EQUIPMENT INCLUDING CATALOG CUTS, DIAGRAMS, DRAWINGS, BROCHURES OR OTHER DESCRIPTIVE DATA SHALL BE SUBMITTED TO THE ENGINEER. ONE COPY WILL BE RETURNED MARKED "APPROVED" IF FOUND SATISFACTORY. WORK MAY BEGIN WHEN THE APPROVED COPY IS RECEIVED BY THE CONTRACTOR.

THE CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE OF WORK FOR THE PROJECT TO THE PROJECT MANAGER FOR APPROVAL. THIS SCHEDULE SHALL BE SUBMITTED NOT LESS THAN TWO (2) WEEKS IN ADVANCE OF STARTING WORK.

REFERENCE TO A PARTICULAR TRADE NAME, MANUFACTURER'S CATALOG OR MODEL NUMBER ARE MADE FOR DESCRIPTIVE PURPOSES TO GUIDE THE BIDDER IN INTERPRETING THE REQUIREMENTS OF THE CONTRACT. THEY SHOULD NOT BE CONSTRUED AS EXCLUDING PROPOSALS ON OTHER MATERIALS, EQUIPMENT OR SUPPLIES THAT ARE EQUAL TO OR BETTER THAN THOSE REFERRED TO.

ANY EQUIPMENT OR MATERIAL NOT SPECIFICALLY CALLED FOR IN THESE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND SUCCESSFULLY OPERATING SYSTEM SHALL BE FURNISHED AS INCIDENTAL TO THE CONTRACT. PAYMENT FOR SUCH ITEMS WILL BE MADE UNDER THE APPROPRIATE RELATED ITEM AT THE CONTRACT BID PRICE, COMPLETE AND IN PLACE.

PLAN AND SPECIFICATION COMPLIANCE

THESE SPECIFICATIONS, TOGETHER WITH THE ACCOMPANYING PLANS, ARE INTENDED TO DESCRIBE THE TYPE, SIZE AND LOCATION OF THE PRODUCTS AND MATERIALS TO BE PROVIDED AND INSTALLED UNDER VARIOUS BID ITEMS RELATED TO TRAFFIC CONTROL.

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC CONTROL DEVICES AND RELATED MATERIALS IN COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS, AS WELL AS THE 2010 OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, THE TRAFFIC ENGINEERING MANUAL, AND THE STANDARD CONSTRUCTION DRAWINGS ISSUED BY THE OHIO DEPARTMENT OF TRANSPORTATION. THESE SPECIFICATIONS SET FORTH THE MINIMUM PERFORMANCE AND OPERATING REQUIREMENTS OF THE TRAFFIC CONTROL ITEMS REFERRED TO HEREIN.

TRAFFIC SIGNAL CONTROL EQUIPMENT SHALL MEET OR EXCEED THE STANDARDS SPECIFIED IN THE FOLLOWING DOCUMENTS:

(A) SPECIFICATIONS LISTED IN THIS PLAN
(B) NEMA STANDARDS PUBLICATION NO. TS1-1989 AND/OR TS2-1992 (OR CURRENT NEMA ISSUE) SECTIONS 1, 2, 5, 6, 8, 11, 13 AND 14.
(C) 2010 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS 625, 632, 633, 725, 732 AND 733.

IN CASE OF A CONFLICTING SPECIFICATION STATEMENT, THE SPECIFICATION DOCUMENT HIERARCHY SHALL BE IN THE ORDER LISTED FROM (A) - HIGHEST, TO (C) - LOWEST.

PROJECT MANAGER OR PLAN CHANGES

THE PROJECT MANAGER SHALL BE DESIGNATED BY ODOT. THE SIGNAL INSTALLATION WORK SHALL BE INSPECTED BY THE PROJECT MANAGER OR AN APPROVED REPRESENTATIVE. ANY CHANGES TO THESE PLANS SHALL BE APPROVED BY THE PROJECT MANAGER PRIOR TO IMPLEMENTATION.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

NEW SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE STATE AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MIS-ALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT, THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY STATE FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION.
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION.
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED.
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE.
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 120 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, UNINTERRUPTIBLE POWER SUPPLIES, AND VIDEO DETECTION SYSTEMS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

ELECTRICAL INSPECTION BY STATE LICENSED INSPECTOR

MOST ELECTRIC COMPANIES REQUIRE THAT ALL NEW OR RELOCATED ELECTRIC SERVICE ENCLOSURES ARE TO BE INSPECTED BY A LICENSED STATE INSPECTOR PRIOR TO CONNECTION TO A UTILITY DISTRIBUTION LINE. THIS IS A NEW SITUATION FOR ODOT BECAUSE INSPECTIONS ARE NOW BEING REQUIRED FOR TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL HIRE A LICENSED ELECTRICAL INSPECTOR(S); PAY THE APPROPRIATE FEE(S), AND ADVISE THE ODOT PROJECT ENGINEER OF THE TIME OF THE INSPECTION(S) SO THAT HE/SHE MAY HAVE A REPRESENTATIVE IN ATTENDANCE. IT IS TO BE NOTED THAT THE INSPECTION DOES NOT SUBSTITUTE FOR ODOT'S FINAL INSPECTION, NOR DOES IT SUPERSEDE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.

THE COST OF THE INSPECTIONS SHALL BE CONSIDERED AS INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE TRAFFIC CONTROL DEVICES.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE.

ODOT ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE LOCATION OR THE DEPTHS OF THE UNDERGROUND FACILITIES SHOWN ON THESE PLANS.

AT LEAST 48 HOURS BEFORE DIGGING, THE CONTRACTOR SHALL CALL THE OHIO UTILITIES PROTECTION SERVICE AT THE NUMBER LISTED ON THE TITLE SHEET. NON-MEMBER UTILITY COMPANIES MUST BE CALLED DIRECTLY. SEE SHEET 4 OF 45 FOR THE NAMES AND ADDRESSES OF THE UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS.

SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE COST OF THIS WORK SHALL BE INCLUDED IN THE BID PRICE FOR THE VARIOUS ITEMS OF WORK.

NEW SIGNAL ACTIVATION

THE SIGNAL SHALL BE ACTIVATED IN ACCORDANCE WITH THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (2010) AND STANDARD DRAWING MT-120.00. ALL COST RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO THE STANDARD CONSTRUCTION DRAWINGS FOR DETAILS FOR DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET.

THE FOLLOWING QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 603, 4" CONDUIT, TYPE E 60 FT.

INSTALLATION LAYOUT

THE TRAFFIC SIGNAL COMBINATION SIGNAL SUPPORTS AND ALL OTHER STATIONED ITEMS SHALL BE LOCATED AND MARKED BY A PROFESSIONAL SURVEYOR USING THE STATION NUMBERS AND OFFSETS PROVIDED IN THESE PLANS. COST INCURRED FOR THIS SERVICE SHALL BE INCIDENTAL TO THE COST OF THE PROJECT.

TRANSITION TO SIGNAL CONTROL

THE CONTRACTOR SHALL FLASH THE NEW SIGNAL INSTALLATION FOR 10 CONSECUTIVE DATES BEFORE BEGINNING CYCLE OPERATION. THE 10-DAY PERFORMANCE TEST IS DELAYED UNTIL THE COMPLETION OF THE 10-DAY FLASHING.

PAYMENT FOR THE TRANSITION TO SIGNAL CONTROL SHALL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT BID PRICES FOR THE VARIOUS SIGNAL ITEMS.

ITEM 625, GROUND ROD, AS PER PLAN

IN ADDITION TO CMS ITEM 625.09, THIS ITEM SHALL CONSIST OF FURNISHING AND RUNNING A SEVEN STRAND #4 COPPER WIRE FROM THE TOP OF THE GROUND ROD AND ATTACHING IT TO THE NEUTRAL BAR IN THE CABINET.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH.

CALCULATED LAM CHECKED LMO

TRAFFIC SIGNAL NOTES

LIC-62-5.17

ITEM 625, TRENCH, 24" DEEP, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 625.13 AND THE STANDARD CONSTRUCTION DRAWINGS, WITHIN EACH TRENCH, THE LOCATION OF UNDERGROUND CABLES OR CONDUIT SHALL BE MARKED BY THE USE OF A PLASTIC CAUTION TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE PLASTIC CAUTION TAPE SHALL MEET THE REQUIREMENTS OF 625.20 AND 725.22 EXCEPT THAT THE TAPE SHALL BE PLACED APPROXIMATELY 8" TO 12" BELOW THE FINISHED GRADE.

PAYMENT SHALL BE INCLUDED IN THE BID PRICE PER LINEAR FOOT OF ITEM 625, TRENCH, 24" DEEP, AS PER PLAN, COMPLETE AND IN PLACE.

ITEM 632, VEHICULAR SIGNAL HEAD, (LED) BLACK, BY TYPE, WITH BACKPLATE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 632 AND CMS 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

MOUNTING HARDWARE:

1. ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE MAST ARM WITH THE YELLOW LENS LOCATED IN FRONT OF THE MAST ARM.

2. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL FOR SIGNAL DISPLAYS OF TWO OR MORE SECTIONS.

3. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.

BACKPLATES:

1. ALL BACKPLATES SHALL HAVE LOUVERS AND 2 INCH FLUORESCENT YELLOW REFLECTIVE BORDER. BORDER SHALL NOT BE APPLIED OVER LOUVERS. LOUVERS SHALL BE ORIENTED TO SCOOP AIR FROM THE FRONT SIDE AND ORIENTED WITH THE OPENINGS FACING ALTERNATE DIRECTIONS BY GROUPS, AS SHOWN. LOUVER OPEN AREA SHALL BE AT LEAST 8 PERCENT OF THE TOTAL BACKPLATE AREA.

THE EXTERIOR OF THE SIGNAL HOUSING AND LOUVERS SHALL BE FINISHED TO MATCH THE SIGNAL SUPPORT FINISH COLOR. ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENT CONDITIONS AND IN ACCORDANCE WITH ALL MANUFACTURERS RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING AND APPLICATION. THE TOP FINISH COAT OF PAINT SHALL BE SIMILAR TO FEDERAL STANDARD PAINT NO. 17038 (BLACK). THE CONTRACTOR SHALL PROVIDE A PAINT SAMPLE CHIP TO BE SUBMITTED WITH THE CABINET SHOP DRAWINGS FOR REVIEW AND APPROVAL. THE APPLICATION PROCEDURE SHALL GUARANTEE A FINISH THAT WILL NOT SCALE, FLAKE OR PEEL.

THE CONTRACTOR SHALL PROVIDE TO ODOT, IN WRITING, THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF THE LAMP, AND DATE OF THE MANUFACTURE FOR ALL LED UNITS TO BE USED IN THE TRAFFIC SIGNAL HEADS PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANT PURPOSES.

THE INFORMATION SHALL BE SENT TO THE FOLLOWING LOCATION:

ODOT, DISTRICT 5
ATTN.: BRIAN BOSCH
ADDRESS: 9600 JACKSONTOWN ROAD
P.O. BOX 306
JACKSONTOWN, OHIO 43030

THE DEPARTMENT WILL MEASURE VEHICULAR SIGNAL HEAD, (LED) BLACK, BY TYPE, WITH BACKPLATE, AS PER PLAN BY THE NUMBER OF COMPLETE UNITS FURNISHED AND INSTALLED, AND WILL INCLUDE ALL SUPPORT AND MOUNTING HARDWARE, DISCONNECT HANGERS, CLOSURE CAPS, DIMMERS, AND LAMPS AS SPECIFIED.

ITEM 632, SIGNALIZATION MISC.: COMBINATION SIGNAL SUPPORT (BY DESIGN) BLACK, ASSEMBLY:

THE TRAFFIC SUPPORT ASSEMBLY SHALL CONSIST OF THE FOLLOWING ITEMS AND DESIGN FEATURES. ALL DESIGN CONFIGURATIONS SHALL BE BASED OFF THE SIGNAL PLAN, SIGNAL POLE DATA TABLE AND TRAFFIC SIGNAL DETAILS:

- COMBINATION SIGNAL SUPPORT WITH A 16 POINT SHARP FLUTE POLE RELIEF
- SINGLE AND DUAL MAST ARM ASSEMBLES
- STEEL MONO TUBE LUMINAIRE BRACKETS
- INDIVIDUAL DECORATIVE ANCHOR BOLT NUT COVERS
- REMOVABLE SHIKRA DECORATIVE POLE CAP

ALL SIGNAL CABLES SHALL BE RUN INSIDE THE POLES AND ARMS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ATTACHMENTS OR CONNECTIONS TO THE POLES. ADDITIONAL WIRING HOLES IN THE POLE SHALL BE DRILLED, REAMED, OR HOLE SAWED. FLAME CUTTING (OXYACETYLENE OR ELECTRICAL ARC) WILL NOT BE ACCEPTED. ALL CUT EDGES OR OTHER DEFECTS IN THE ZINC COATING SHALL BE CLEANED AND COVERED WITH TWO COATS OF ZINC RICH REPAIR PAINT MATCHING THE FACTORY FINISH. BRACKETS AND APPURTENANCES SHALL BE SECURELY ATTACHED WITH STAINLESS STEEL BANDS OR STAINLESS STEEL SCREWS OF SUFFICIENT SIZE FOR THE INTENDED LOADING. STAINLESS STEEL BANDING MAY BE USED ONLY WHERE SPECIFICALLY AUTHORIZED BY THESE PLANS AND SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER. ALL BANDING, WHERE USED, SHALL BE FACTORY PAINTED TO MATCH THE SIGNAL SUPPORTS.

THE MAST ARM STRUCTURE, BRACKET AND PEDESTAL SPECIFICATIONS ARE MINIMUM STANDARDS THAT ALL MATERIALS MUST MEET OR EXCEED. ODOT - DISTRICT 5 SHALL BE THE SOLE ENTITY TO DETERMINE IF THE PRODUCT SUPPLIED BY A MANUFACTURER MEETS OR EXCEEDS THE INTENT OF THESE SPECIFICATIONS. REQUESTS FOR CLARIFICATION OF THESE SPECIFICATIONS SHALL BE ADDRESSED TO THE DISTRICT'S TRAFFIC ENGINEER AT (740) 323-5182.

THE MAST ARM STRUCTURES, LUMINAIRE BRACKETS, AND RELATED ITEMS SHALL BE MANUFACTURED BY VALMONT INDUSTRIES, UNION METAL OR APPROVED EQUAL. THE VENDOR SHALL BE REQUIRED TO CONDUCT AND SUBMIT A SIGNAL POLE DESIGN TO THE CONTRACTOR FOR THE COMBINATION SIGNAL SUPPORTS, AS SHOWN IN THE PLANS. THIS SIGNAL POLE DESIGN REPORT SHALL BE REVIEWED AND APPROVED BY THE PROJECT MANAGER PRIOR TO THE ORDERING OF ANY MATERIALS.

DESIGN CRITERIA

ALL SINGLE-ARM AND DOUBLE-ARM SIGNAL MAST ARM POLE ASSEMBLIES SHALL BE DESIGNED TO SUPPORT THE LOADING AS SHOWN ON THE TYPICAL SHEETS AND THE GIVEN LOADING AS SHOWN ON THE INDIVIDUAL INTERSECTION LAYOUT SHEETS. THE STRUCTURAL INTEGRITY OF ALL PRODUCTS SHALL TAKE PRECEDENCE OVER STATED DESIGN DIMENSIONS IF THESE DIMENSIONS IN THE OPINION OF THE MANUFACTURER NEED TO BE INCREASED FOR THAT MANUFACTURER'S PRODUCT TO MEET THE REQUIRED DESIGN LOADING REQUIREMENTS. THE MANUFACTURER SHALL SUBMIT DESIGN CHANGES TO THE PROJECT MANAGER FOR EVALUATION AND APPROVAL. THE STATED DIMENSIONS THAT ARE IN THESE PLANS ARE SHOWN TO ALLOW FLEXIBILITY IN FUTURE PART REPLACEMENTS AND TO CREATE A STANDARD FOR THE INTERCHANGEABILITY OF PARTS WITHIN THE VILLAGE OF JOHNSTOWN. COSTS ASSOCIATED WITH ANY REQUIREMENT OF THESE SPECIFICATIONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE ITEM.

MAST ARM STRUCTURES SHALL BE DESIGNED ACCORDING TO THE "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", 2009, AASHTO (AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS). THE DESIGN SHALL BE SUCH THAT THE MAST ARM STRUCTURE WILL SUPPORT THE LOADING AS DEPICTED IN THESE PLANS. A 90 MPH WIND LOAD FACTOR SHALL BE INCORPORATED IN THE DESIGN. THE MAST ARM POLE MANUFACTURER SHALL PROVIDE SHOP DRAWINGS INDICATING THE EQUIVALENT MAXIMUM ARM END LOADING AT FAILURE FOR EACH DIFFERENT MAST ARM LENGTH BASED ON SQUARE FOOT OF AREA AND WEIGHT FOR EACH ARM. THE MAXIMUM LOADING DATA SHALL INCLUDE VALUES BASED ON SQUARE FOOTAGE OF AREA (CALCULATED AS IF ALL ATTACHMENTS WERE RIGIDLY MOUNTED, 4.7 SQ. FT. FOR SIGNALS AND 7.5 SQ. FT. FOR SIGNS) AND THE ALLOWABLE WEIGHT FOR ALL ATTACHED OBJECTS ON EACH ARM. THE END OF ARM MAXIMUM VERTICAL AND HORIZONTAL FORCE APPLIED AT FAILURE OF THE ARM SHOULD BE CLEARLY STATED.

THE MAST ARM POLE ASSEMBLY, THE MAST ARM ASSEMBLY AND THE LUMINAIRE BRACKETS SHALL BE MADE BY THE SAME MANUFACTURER.

ALL PRE-DRILLED HOLES FOR ALL ITEMS SHALL BE DEBURRED AND FREE OF ALL SHARP EDGES. ALL OUTSIDE WELDS ON MAST ARMS SHALL BE ROLLED OR GROUND SMOOTH. ALL INSIDE WELDS ON MAST ARM STRUCTURES SHALL BE VOID OF SHARP EDGES.

ANY STRUCTURAL FASTENER (3/4" OR GREATER) SHALL BE GALVANIZED PER ASTM 153 AND SHALL BE MADE OF HIGH STRENGTH CARBON STEEL. ANY OTHER FASTENER SHALL BE STAINLESS STEEL. ALL VISIBLE FASTENERS SHALL MATCH THE COATING OF THE STRUCTURE.

THE POLE SHAFT ASSEMBLY AND THE MAST ARM ASSEMBLY SHALL BE GALVANIZED AND THEN EITHER POWDER-COATED OR FINISHED WITH A WET PAINT PROCESS. ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENTAL CONDITIONS, AND IN ACCORDANCE WITH ALL MANUFACTURERS RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING, AND APPLICATION. THE TOP FINISH COAT OF PAINT SHALL BE FEDERAL COLOR NO. 17038 (BLACK). THE CONTRACTOR SHALL PROVIDE A PAINT SAMPLE/CHIP TO BE SUBMITTED WITH THE SIGNAL SUPPORT SHOP DRAWINGS FOR REVIEW AND APPROVAL.

ALL EXTERIOR SURFACES OF THE MAST ARM POLE SHAFT ASSEMBLY, MAST ARM ASSEMBLY, ALL BOLT COVERS, ALL CLAMPS, CLEVIS TO CLEVIS UNIVERSAL, WIRE ENTRANCE, ALL HANDHOLE COVERS, LUMINAIRE BRACKETS, POLE AND ARM CAPS SHALL HAVE A COATING PROPERLY APPLIED TO THEM. EXTERIOR SURFACES OF ALL FASTENER BOLTS/SCREWS, WASHER, NUTS, AND OTHER ATTACHMENT HARDWARE SHALL HAVE A COATING APPLIED TO THEM. FASTENER THREADS SHALL NOT BE CLOGGED WITH COATING MATERIAL.

ALL COATED ITEMS SHALL BE SHIPPED IN A MANNER TO MINIMIZE DAMAGE IN TRANSIT. SURFACES SHOULD BE PROTECTED BY FOAM PADDING, BY WRAPPING IN CARDBOARD, BY SPIRAL WRAPPING WITH WAX PAPER, BY CRATING, BY A COMBINATION OF METHODS, OR BY ANY OTHER METHOD SELECTED BY THE MANUFACTURER WHICH WILL INSURE DELIVERY OR UNDAMAGED MATERIALS. MATERIALS DAMAGED IN TRANSIT CAUSED BY IMPROPER PACKAGING OR IMPROPER TRANSIT HANDLING SHALL BE REJECTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MATCHING COATING MATERIAL FOR TOUCH-UP WORK IDENTICAL TO THE ORIGINAL COATING PLACED ON THE STRUCTURE.

THE INSIDE OF EACH MAST ARM POLE ASSEMBLY, EACH MAST ARM ASSEMBLY, AND OTHER MAST ARM ACCESSORIES SHALL BE COATED WITH GALVANIZING MATERIAL. THE INSIDE AREA FORMED BY THE GUSSETS, POLE, AND POLE FLANGE PLATE SHALL BE COATED TO PROTECT THE AREA FROM CORROSION. IT IS TO BE NOTED THAT SOME TYPE OF OPENING SHALL BE REQUIRED TO COAT THE GUSSET AREA. THIS OPENING SHALL NOT HAMPER THE STRUCTURAL INTEGRITY OF THE FLANGE ASSEMBLY.

EACH COATING LAYER SHALL BE PROPERLY CURED BEFORE THE APPLICATION OF THE NEXT COAT. THE APPLICATION PROCEDURE SHALL BE SUCH TO GUARANTEE A FINISH THAT WILL NOT SCALE, FLAKE, OR PEEL. THE FINISH SHALL RETAIN ITS COLOR BRIGHTNESS AND APPEARANCE FOR 10 YEARS WITHOUT DULLING, BLOOMING, OR FADING.

MAST ARM POLE ASSEMBLY

EACH POLE SHAFT SHALL:

1. BE MADE OF WELDABLE GRADE, HOT ROLLED COMMERCIAL QUALITY CARBON STEEL FORMED WITH A NOMINAL OUTSIDE BASE DIAMETER.

2. BE CONTINUOUSLY TAPERED FROM THE POLE BOTTOM TO THE POLE AT A RATE RANGING BETWEEN 0.10 TO 0.14 INCH PER FOOT AND SHALL MAINTAIN A CIRCULAR CROSS SECTION (CONSTANT CROSS SECTIONAL RADIUS; W/ 16 POINT SHARP POINT DESIGN).

3. BE CONSTRUCTED WITH A MAXIMUM OF 2 LONGITUDINAL SEAM WELDS.

4. BE CONSTRUCTED USING A CONTINUOUS NON-OVERLAPPING TAPERED TUBE OR TAPERED SECTIONS WELDED AT BUTT JOINTS THAT USE A 3 INCH WIDE BACK-UP RING. A ONE INCH WIDE SPACER RING SHALL BE USED TO FILL IN THE GAP FORMED BY DISSIMILAR GAUGED SECTIONS. THE SPACER SHALL HAVE A WIDTH EQUAL TO THE DIFFERENCE IN SECTION GAUGE SIZES. BUTT JOINT WELDS SHALL BE FULL PENETRATION WELDS. NO SLIP-JOINTED STYLED POLES WILL BE ALLOWED.

5. CONFORM TO ASTM-A595 GRADE A (55,000 PSI MINIMUM YIELD STRENGTH AFTER FABRICATION).

6. HAVE AN ARM FLANGE PLATE THAT IS WELDED TO THE POLE USING GUSSET PLATES ON THE TOP, BOTTOM, AND BOTH SIDES ON THE FLANGE PLATE.

7. HAVE 2 HAND HOLES EACH COMPLETE WITH A COVER (FLUSH WITH THE POLE SURFACE), A RECTANGULAR OR ELLIPTICAL REINFORCED FRAME, AND STAINLESS STEEL FASTENER FOR THE COVER. THE FASTENER SHALL BE FLUSH WITH THE HANDHOLE SURFACE AND SHALL REQUIRE THE USE OF AN ALLEN WRENCH (NOMINAL 1/8 INCH) TO REMOVE. A DIFFERENT HANDHOLE COVER ATTACHMENT CAN BE SUBMITTED FOR APPROVAL BY THE PROJECT MANAGER. THE HAND HOLES SHALL BE LOCATED 180 DEGREES FROM THE MAST ARM.

   A. THE TOP HANDHOLE SHALL HAVE A MINIMUM INSIDE OPENING OF 3 INCH X 5 INCH AND BE SIMILAR IN DESIGN TO THE BOTTOM HANDHOLE EXCEPT THAT NO GROUNDING PROVISION IS REQUIRED.

   B. THE BOTTOM HANDHOLE SHALL HAVE A MINIMUM INSIDE OPENING OF 4 INCH BY 8 INCH. A GROUNDING PROVISION CAPABLE OF ACCEPTING A #6 AWG COPPER GROUNDING WIRE SHALL BE PROVIDED AND SHALL BE ATTACHED TO THE FRAME.

8. HAVE A 2 INCH (MINIMUM) DIAMETER HOLE WHICH ALIGNS WITH A 2 INCH DIAMETER HOLE IN ITS ARM FLANGE PLATE.

9. HAVE 2 WELDED CABLE SUPPORT HOOKS ("J" HOOKS) LOCATED ON THE INSIDE OF THE POLE 90° FROM THE MAST ARM.

10. BE TELESCOPED THROUGH A BASE PLATE.

11. BE DESIGNED TO SUPPORT A MAST ARM WITH MINIMUM LOADING AS SHOWN IN THE POLE DETAIL DRAWINGS AND BE DESIGNED TO SUPPORT THE ACTUAL ARM LOADING SHOWN ON THE TRAFFIC SIGNAL PLAN.

CALCULATED LMO
CHECKED KJG

TRAFFIC SIGNAL NOTES

LIC-62-5.17

ITEM 632, SIGNALIZATION MISC.: COMBINATION SIGNAL SUPPORT (BY DESIGN) BLACK, ASSEMBLY (CONTINUED):

THE POLE BASE PLATE SHALL:

1. BE FABRICATED FROM ASTM-A36 STEEL (36,000 PSI).
2. TELESCOPE THE POLE SHAFT AND BE WELDED TO THE POLE BY MEANS OF 2 CONTINUOUS WELDS: ONE ON THE INSIDE OF THE BASE PLATE AT THE END OF THE POLE SHAFT AND THE OTHER ON THE OUTSIDE AT THE TOP OF THE BASE PLATE.
3. CONFORM TO THE BOLT PATTERN SHOWN IN THESE PLANS.
4. BE OF PROPER THICKNESS AS TO SUPPORT THE GIVEN LOADS.

THE POLE FLANGE PLATE SHALL:

1. BE WELDED TO THE POLE AT THE HEIGHT SPECIFIED IN THESE PLANS (CENTER LINE OF FLANGE PLATE TO BOTTOM OF THE BASE PLATE).
2. HAVE WELDED SIDE GUSSET PLATES TANGENT TO THE POLE.
3. HAVE WELDED TOP AND BOTTOM GUSSET PLATES THAT HAVE BEEN CUT TO FIT THE CURVATURE OF THE POLE.
4. HAVE ALL PLATES FABRICATED FROM ASTM-A36 STEEL (MINIMUM YIELD STRENGTH OF 36,000 PSI).
5. HAVE A 2 INCH DIAMETER WIRING HOLE CENTERED IN THE ARM FLANGE PLATE. THE CENTER OF THIS 2 INCH HOLE SHALL LINE UP WITH THE CENTER OF THE 2 INCH MINIMUM POLE SHAFT CABLE ENTRY HOLE.
6. HAVE 4 THREADED BOLT HOLES (7 UNC) IN THE FLANGE FOR ATTACHMENT OF THE ARM.
7. COME WITH 4 CONNECTOR BOLTS CONFORMING TO ASTM A325 AND GALVANIZED TO ASTM A153 (INCLUDES WASHER AND LOCK WASHER).
8. HAVE THE INSIDE (POLE SIDE) OF THE ASSEMBLY PROPERLY COATED TO PREVENT RUSTING. AN OPENING IN THIS AREA IS NEEDED FOR GALVANIZING THE INSIDE OF THE ASSEMBLY.
9. CONFORM TO BOLT PATTERN AND DIMENSIONS AS SHOWN IN THESE PLANS. THE GUSSET-FLANGE PLATE DESIGN CAN BE SUCH TO GIVE RISE TO THE ARM.

THE MAST ARM ASSEMBLY SHALL:

1. CONSIST OF AN ARM SHAFT AND A MOUNTING PLATE. THE ARM SHALL BE MADE FROM STEEL CONFORMING AS A MINIMUM TO ASTM-A595 GRADE A (55,000 PSI MINIMUM YIELD STRENGTH). THE ARM FLANGE PLATE SHALL BE MADE FROM STEEL CONFORMING AS A MINIMUM TO ASTM-36 (36,000 PSI). THE FLANGE SHALL HAVE PRE MOUNTING HOLES WHICH ALIGN WITH THE HOLES IN THE POLE FLANGE PLATE.
2. HAVE AN ARM THAT IS CONTINUOUSLY TAPERED FROM THE FLANGE PLATE TO THE END OF THE ARM AT A RATE OF 0.11 TO 0.14 INCH PER FOOT. THE ARM SHALL MAINTAIN A CIRCULAR CROSS SECTION (CONSTANT CROSS SECTIONAL RADIUS; NO MULTI-SIDED ARMS ARE ACCEPTABLE).
3. BE FABRICATED WITHOUT THE USE OF SLIP JOINTS. THE ARM SHAFT SHALL BE CONSTRUCTED USING A CONTINUOUS NON-OVERLAPPING TAPERED TUBE OR TAPERED SECTIONS WELDED AT BUTT JOINTS THAT USE A 3 INCH WIDE BACKUP RING. A 1 INCH WIDE SPACER RING SHALL BE USED TO FILL IN THE GAP FORMED BY DISSIMILAR GAUGED SECTIONS. THE SPACER SHALL HAVE A WIDTH EQUAL TO THE DIFFERENCE IN SECTION GAUGE SIZES. BUTT JOINT WELDS SHALL BE FULL PENETRATION WELDS. NO SLIP JOINTED STYLED ARMS WILL BE ALLOWED.
4. SHALL BE CONSTRUCTED SO THE BASE OF THE ARM TELESCOPES THE FLANGE PLATE. THE ARM SHALL BE CIRCUMFERENTIALLY WELDED TO THE PLATE BY MEANS OF AN INSIDE AND OUTSIDE FILLET WELD WHICH SHALL BE EQUAL TO THE WALL THICKNESS OF THE ARM.
5. HAVE A REMOVABLE END OF ARM CAP ATTACHED BY A MINIMUM OF 3 STAINLESS STEEL SET SCREWS. THIS WILL BE THE ONLY ATTACHMENT METHOD ACCEPTABLE. THE INSIDE DIAMETER OF THE END OF ARM CAP SHALL BE EQUAL TO THE END OF ARM OUTSIDE DIAMETER PLUS TWO TIMES THE ARM TAPER.
6. NOT HAVE PRE-DRILLED HOLES FOR SIGNAL HEAD CABLE ENTRY. HOLES SHALL BE FIELD DRILLED BY THE CONTRACTOR.
7. HAVE AN UPWARD RISE FROM THE POLE SO WHEN THE ARM IS FULLY LOADED, THE END OF THE ARM IS EITHER SLIGHTLY ABOVE (WITHIN 12 INCHES) OR EQUAL TO A HORIZONTAL PLANE THAT PASSES THROUGH THE CENTER LINE OF THE FLANGE ATTACHMENT FOR THE ARM AND POLE. A POLE DEFLECTION OF ZERO (0") SHALL BE ASSUMED. A SMALL NEGATIVE TANGENT AT THE SMALL END OF THE ARM IS ACCEPTABLE.
8. INCLUDE THE RIGID PIPE MOUNTS AND ITS ATTACHMENT HARDWARE.

EACH ANCHOR BOLT SHALL:

1. CONFORM AS A MINIMUM TO ASTM-A36 M55 (55,000 PSI MINIMUM YIELD STRENGTH, AND SHALL BE LOW CARBON 0.45% MAXIMUM, TENSILE STRENGTH 75 TO 95 KSI).
2. BE GALVANIZED PER ASTM-A153.
3. COME WITH 2 HEX NUTS MEETING ASTM-A563 GRADE A, ANSI B18.2.2, AND SHALL HAVE ANSI B1.1 CLASS 2 UNC ROLLED THREADS. A WASHER AND LOCK WASHER SHALL ALSO BE PROVIDED.

PAYMENT SHALL BE AS PER ITEM 632.

ITEM 632, POWER SERVICE, AS PER PLAN

ELECTRIC POWER SHALL BE OBTAINED FROM LICKING RURAL ELECTRIFICATION (740-348-1149) AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS AC.

IN ADDITION TO THE REQUIREMENTS OF ITEM 632 POWER SERVICE, THE CONTRACTOR SHALL INSTALL THE DISCONNECT SWITCH AND ELECTRIC METER ON THE SIGNAL CABINET. THESE ITEMS SHALL BE ORIENTED ON THE SIGNAL CONTROLLER CABINET IN SUCH A MANNER TO MINIMIZE SAID ITEMS FROM THE VIEW OF THE ROADWAY.

THE CONTRACTOR SHALL PROVIDE A KEYED PADLOCK TO MATCH THAT CURRENTLY IN THE VILLAGE. PLEASE CONTACT JACK LIGGETT, VILLAGE SERVICE DIRECTOR AT (740) 967-4746 FOR LOCK DETAILS.

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF THE POWER COMPANY FOR INFORMATION REGARDING THE METER BASE INSTALLATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP.

THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING ALL THE ASSOCIATED FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL IS ACCEPTED BY THE MAINTAINING AGENCY.

PAYMENT FOR ITEM 632, POWER SERVICE, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE, COMPLETE AND IN PLACE, INCLUDING ALL ADDITIONAL SPECIFIED ITEMS, WITH CONNECTIONS TESTED AND ACCEPTED.

ITEM 632, SIGNAL SUPPORT FOUNDATION, AS PER PLAN

THE ANCHOR BASE POLE FOUNDATION SIDES SHALL BE ORIENTATED PARALLEL TO THE SIDEWALK, BACK-OF-CURB, OR EDGE-OF-PAVEMENT AS SHOWN IN THE PLAN. THE TOP OF THE FOUNDATION SHALL BE FLUSH WITH ANY ADJACENT SIDEWALK OR CONCRETE AREA. THE CONTRACTOR SHALL HAVE A PROFESSIONAL SURVEYOR STAKE THE LOCATIONS OF ALL SIGNAL SUPPORTS. HE/SHE SHALL HAVE ALL UTILITIES FIELD MARKED IN THE AREAS OF THESE PROPOSED SUPPORT LOCATIONS. THE FIELD LOCATIONS OF ALL SIGNALS SUPPORTS AS STAKED SHALL BE APPROVED BY THE PROJECT MANAGER.

SIGNAL SUPPORT FOUNDATIONS SHALL BE INSTALLED AND APPROVED BY THE PROJECT MANAGER PRIOR TO THE ORDERING OF SIGNAL SUPPORTS AND MAST ARMS. IF POLES ARE LOCATED OTHER THAN AS SHOWN ON THE PLANS, THE LENGTH OF MAST ARMS SHALL BE ADJUSTED. THE CONTRACTOR SHALL PROVIDE THE PROJECT MANAGER WITH 3 COPIES OF A CHART INDICATING THE LENGTH OF ARMS TO BE ORDERED. THE PROJECT MANAGER SHALL RETURN 1 COPY OF THE CHART TO THE CONTRACTOR MARKED APPROVED BEFORE THE CONTRACTOR COMPLETES THE ORDER.

THE FOUNDATION DESIGNS ARE INCLUDED AND SHOWN ON SHEETS 34B AND 34C. THE CONTRACTOR SHALL CONSTRUCT THE FOUNDATIONS ACCORDINGLY. NO VARIATION FROM THESE DESIGNS SHALL BE PERMITTED

PAYMENT SHALL BE AS PER ITEM 632.

ITEM 633, CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN

THE CONTROLLER SHALL BE THE SIEMENS/EAGLE EPAC MODEL 3108M52 OR LATEST MODEL, AS MANUFACTURED BY SIEMENS INDUSTRY, INC., MOBILITY DIVISION, COMPLETE TRANSPORTATION, INTELLIGENT TRAFFIC SOLUTIONS, AUSTIN, TEXAS.

THE CONTROLLER CABINET SHALL BE A COMBINATION CABINET WITH A SEPARATE UPS BATTERY COMPARTMENT WITH TS2 TYPE 2 CONTROLLER FACILITIES. APPROXIMATE DIMENSION SHALL BE 57" TALL BY 30" DEEP BY 58" WIDE. THE MAIN CONTROLLER CABINET DOOR SHALL BE HINGED ON THE LEFT AND THE BATTERY COMPARTMENT DOOR SHALL BE HINGED ON THE RIGHT.

THE EXTERIOR OF THE CONTROLLER CABINET SHALL BE FINISHED TO MATCH THE SIGNAL SUPPORT FINISH COLOR. ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENT CONDITIONS AND IN ACCORDANCE WITH ALL MANUFACTURERS RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING AND APPLICATION. THE TOP FINISH COAT OF PAINT SHALL BE SIMILAR TO FEDERAL STANDARD PAINT NO. 17038 (BLACK). THE CONTRACTOR SHALL PROVIDE A PAINT SAMPLE CHIP TO BE SUBMITTED WITH THE CABINET SHOP DRAWINGS FOR REVIEW AND APPROVAL. THE APPLICATION PROCEDURE SHALL GUARANTEE A FINISH THAT WILL NOT SCALE, FLAKE OR PEEL.

PAYMENT FOR ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH CABINET, IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633, CABINET FOUNDATION, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ADDITIONAL EXCAVATION AND CONCRETE NECESSARY TO EXTEND THE CABINET FOUNDATION IN ORDER TO SUPPORT THE UNINTERRUPTIBLE POWER SUPPLY (UPS). IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A FOUNDATION LARGE ENOUGH TO ACCOMMODATE THE UPS BEING PROVIDED BY SEPARATE BID ITEM. AS A MINIMUM, THE ADDITIONAL FOUNDATION SHALL BE 30 INCHES SQUARE AND BE OTHERWISE CONSTRUCTED IN ACCORDANCE WITH NEMA CABINET FOUNDATIONS SHOWN ON TC-83.20.

PAYMENT FOR ITEM 633, CABINET FOUNDATION, AS PER PLAN, SHALL INCLUDE ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO INSTALL THE FOUNDATION, INCLUDING CONDUIT ELLS AND ANCHOR BOLTS, RESTORATION OF DISTURBED AREAS AND DISPOSAL OF SURPLUS MATERIAL AS PER CMS 104.04.

CALCULATED LMO
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TRAFFIC SIGNAL NOTES

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ITEM 633, CONTROLLER WORK PAD, AS PER PLAN

THIS ITEM SHALL INCLUDE THE INSTALLATION OF A WORK PAD FOR THE GROUND MOUNTED NEMA CABINET AS DETAILED ON STANDARD DRAWING TC-83.20.

IN ADDITION TO THE WORK PAD FOR THE NEMA CABINET, THE CONTRACTOR SHALL INSTALL A WORK PAD FOR THE UNINTERRUPTIBLE POWER SUPPLY (UPS).

PROVIDE A 36" SQUARE WORK PAD IN FRONT OF THE UPS, EXCAVATE A MINIMUM OF 9" BELOW GRADE. PLACE AND COMPACT 6" OF MATERIAL CONFORMING TO 304.02 AND INSTALL A CAST IN PLACE WORK PAD THAT IS A MINIMUM OF 4' THICK.

PAYMENT FOR ITEM 633, CONTROLLER WORK PAD, AS PER PLAN, SHALL INCLUDE ALL EQUIPMENT, LABOR AND MATERIALS NECESSARY TO INSTALL THE CONCRETE WORK PAD.

ITEM 633, CABINET RISER, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 633 AND 733, THE CABINET RISER SHALL BE MANUFACTURED AND PROVIDED BY SIEMENS INDUSTRY, INC., MOBILITY DIVISION, COMPLETE TRANSPORTATION, INTELLIGENT TRAFFIC SOLUTIONS, AUSTIN, TEXAS.

THE EXTERIOR OF THE CABINET RISER SHALL BE FINISHED TO MATCH THE SIGNAL SUPPORT FINISH COLOR. ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENT CONDITIONS AND IN ACCORDANCE WITH ALL MANUFACTURERS RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING AND APPLICATION. THE TOP FINISH COAT OF PAINT SHALL BE SIMILAR TO FEDERAL STANDARD PAINT NO. 17038 (BLACK). THE CONTRACTOR SHALL PROVIDE A PAINT SAMPLE CHIP TO BE SUBMITTED WITH THE CABINET SHOP DRAWINGS FOR REVIEW AND APPROVAL. THE APPLICATION PROCEDURE SHALL GUARANTEE A FINISH THAT WILL NOT SCALE, FLAKE OR PEEL.

PAYMENT FOR ITEM 633, CABINET RISER, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH CABINET RISER, IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633, UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 633 AND 733, THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST UNINTERRUPTIBLE POWER SUPPLY (UPS) STATUS INDICATOR LAMPS THAT ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY AN UPS. A 1-INCH (25 MM) WATERPROOF NEMA 4X OR IP66 LAMP WITH A DOMED REO LENS SHALL BE USED TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS LAMP SHALL BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THE STATUS DISPLAY SHALL BE SOLID 100% DUTY CYCLE (NOT FLASHING). THE LAMP SHALL BE PLACED IN THE UPS CABINET WALL (NOT THE ROOF) IN SUCH A MANNER AS TO BE SEALED FROM WATER INTRUSION AND VISIBLE FROM A VEHICLE AT THE STOP LINE IN THE CLOSEST LANE OF AT LEAST ONE APPROACH TO THE SIGNALIZED INTERSECTION. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC.

THE UPS EQUIPMENT SHALL BE HOUSED IN THE DUAL COMPARTMENT SIGNAL CONTROLLER CABINET, PAID FOR UNDER SEPARATE BID ITEM. THE UPS EQUIPMENT SHALL BE MODEL # FXM1100 UPS WITH AN UTAS (UNIVERSAL AUTOMATIC TRANSFER SWITCH) MANUFACTURED AND PROVIDED BY ALPHA TECHNOLOGIES LTD., 700 RIVERFRONT GATE, BURNABY, BC V5J 5M4, CANADA. THE UPS EQUIPMENT SHALL INCLUDE AN EXTERNAL KEYED COMPARTMENT WITH A 3-PRONG GENERATOR INLET, MANUAL GENERATOR TRANSFER SWITCH AND LED LINE VOLTAGE INDICATOR.

PAYMENT FOR ITEM 633, UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH CABINET. IN PLACE, COMPLETELY INSTALLED IN THE LOCATION SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 816, VIDEO DETECTION SYSTEM, AS PER PLAN

THIS ITEM CONSISTS OF FURNISHING AND INSTALLING A VIDEO DETECTION CAMERA SYSTEM IN CONFORMANCE WITH SUPPLEMENTAL SPECIFICATIONS 816 & 907 FOR USE IN LIEU OF A CONVENTIONAL VEHICLE DETECTOR LOOP INSTALLATION. THE VIDEO DETECTION SYSTEM SHALL THE ITERIS VANTAGE SYSTEM AND SHALL BE MANUFACTURED AND PROVIDED BY ITERIS, INC., 1700 CARNEGIE AVENUE, SANTA ANA, CA 92705. PHONE: (949) 270-9400. THE VIDEO DETECTION SYSTEM SHALL INCLUDE THE CAMERAS, CABINET HARDWARE, VIDEO CONTROL COMPONENTS, COMMUNICATION CABLES, CONNECTORS, MOUNTING HARDWARE INCLUDING EXTENSION TUBES, PC SOFTWARE AND ALL OTHER NECESSARY COMPONENTS TO INSTALL A VIDEO DETECTION CAMERA SYSTEM COMPLETE IN PLACE THAT IS FULLY FUNCTIONAL WITH THE TRAFFIC SIGNAL INSTALLATION.

THE VIDEO DETECTION CABINET HARDWARE SHALL BE CAPABLE OF RUNNING ALL THE DESIGNATED CAMERAS SHOWN IN THE PLANS AT THE INTERSECTION. THE CAMERAS SHALL BE CONFIGURED TO PERFORM VEHICLE DETECTION AND TRAFFIC COUNTS AS SPECIFIED. THE PROPOSED SYSTEM SHALL BE DESIGNED TO OPERATE ON A 120VAC, 60 HZ INCOMING CONTROLLER CABINET POWER LINE. VIDEO DETECTION ZONES SHALL BE ESTABLISHED FOR EACH OF THE THREE LEGS AS DETAILED WITHIN. A PORTABLE COLOR LCD MONITOR, HAVING AN 8" MINIMUM SCREEN AND AT LEAST ONE BNC COMPOSITE VIDEO CONNECTOR, SHALL BE PROVIDED TO VIEW AND CONFIGURE THE VIDEO DETECTION CAMERAS. TEN (10) BUSINESS DAYS PRIOR TO INSTALLATION OF THE VIDEO DETECTION SYSTEM, THE CONTRACTOR SHALL CONTACT BRIAN BOSCH. P.E., DISTRICT - 5 TRAFFIC ENGINEER, SO AN ODOT REPRESENTATIVE CAN BE PRESENT FOR THE CONFIGURATION OF THE VIDEO DETECTION CAMERA SYSTEM. THE PORTABLE LCD MONITORS WILL BE GIVEN TO THE VILLAGE OF JOHNSTOWN.

THE VIDEO DETECTION SYSTEM SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING COMPONENT ITEMS:

- 4 EACH: - VANTAGE VIDEO DETECTION CAMERA, (IMAGE SENSING UNIT), 120VAC, MODEL #RZ-4 AWDR
- 1 EACH: - VANTAGE EDGE 2 (4) CAMERA INPUT (QUAD) PROCESSOR - INCLUDES PRINT MARKUP AND TECH SUPPORT
- 1 EACH: - TS2-1M MODULE W/ ITERIS VRACK TS2 RACK
- 800 FT: - VIDEO COMPOSITE DETECTION & POWER CABLE WITH 600 VOLT INSULATION - INCLUDES ALL NECESSARY CONNECTORS
- 1 EACH: - SURGE PROTECTED POWER PANEL FOR ITERIS VIDEO DETECTION SYSTEM
- 2 EACH: - UNIVERSAL MOUNTING BRACKET (ASTROBRACKET) FOR MAST ARM
- 3 EACH: - ITERIS MODEL # CAMBRKT-4, UNIVERSAL MOUNTING BRACKETS FOR LUMINAIRE ARM & SIGNAL SUPPORT
- 1 EACH: - PORTABLE COLOR LCD MONITOR

ALL VIDEO DETECTION EQUIPMENT EXCEPT THE IMAGE SENSOR UNITS SHALL BE HOUSED IN THE CONTROLLER CABINET. ALL DEVICES SHALL BE MOUNTED SO ALL CABLE CONNECTIONS ARE ACCESSIBLE AND ALL DEVICE DOORS CAN BE FULLY OPENED FOR SERVICING. SHELF MOUNTED DEVICES SHALL BE POSITIONED SO THEY ARE ACCESSIBLE AND DO NOT INTERFERE WITH OTHER CABINET DEVICES.

THE EXTERIOR OF THE VIDEO CAMERA HOUSINGS AND ALL MOUNTING HARDWARE SHALL BE FINISHED TO MATCH THE SIGNAL SUPPORT FINISH COLOR. ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENT CONDITIONS AND IN ACCORDANCE WITH ALL MANUFACTURERS RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING AND APPLICATION. THE TOP FINISH COAT OF PAINT SHALL BE SIMILAR TO FEDERAL STANDARD PAINT # 17038 (BLACK). THE CONTRACTOR SHALL PROVIDE A PAINT SAMPLE CHIP TO BE SUBMITTED WITH THE CABINET SHOP DRAWINGS FOR REVIEW AND APPROVAL. THE APPLICATION PROCEDURE SHALL GUARANTEE A FINISH THAT WILL NOT SCALE, FLAKE OR PEEL.

THE IMAGE SENSOR UNIT SHALL BE MOUNTED ON A LUMINAIRE BRACKET ARM (SEPARATE BID ITEM) USING A LOW PROFILE BANDED OR CLAMPED MOUNTING ASSEMBLY. THE IMAGE SENSOR MOUNTING ASSEMBLY, BANDING, AND THE IMAGE SENSOR HOUSING INCLUDING THE VISOR SHALL BE FINISHED TO MATCH THE MAST ARM COLOR. THE COMPOSITE VIDEO DETECTION & POWER CABLE SHALL BE RUN CONTINUOUSLY FROM THE IMAGE SENSOR TO THE CONTROLLER CABINET (NO SPLICES).

IN ADDITION TO THE MATERIALS THAT ARE MENTIONED ABOVE OR SHOWN IN THE PLANS, THE CONTRACTOR SHALL ALSO FURNISH THE FOLLOWING DEVICES. THE COST OF THESE DEVICES SHALL BE INCIDENTAL TO THE COST OF THIS VIDEO DETECTION SYSTEM.

- 1 EACH: SPARE VANTAGE VIDEO DETECTION CAMERA, 120VAC (COMPLETE UNIT)
- 1 EACH: SPARE UNIVERSAL MOUNTING BRACKET FOR LUMINAIRE ARM (LOW PROFILE)
- 1 EACH: UNIVERSAL MOUNTING BRACKET (ASTROBRACKET) FOR MAST ARM

PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, CABINET & MOUNTING HARDWARE, AND OTHER INCIDENTALS NECESSARY FOR EACH VIDEO DETECTION CAMERA, COMPLETE IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, TESTED, AND ACCEPTED. THIS ITEM WILL BE PAID AT THE CONTRACT UNIT PRICE PER EACH CAMERA INCLUDING THE OUTLINED SPARE EQUIPMENT TO BE DELIVERED TO THE VILLAGE OF JOHNSTOWN.

CALCULATED LMO
CHECKED KJG

TRAFFIC SIGNAL NOTES

LIC-62-5.17

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

   A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

   B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

   C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

   D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

   E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

   F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.

   A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

   B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

   C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

   D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.

   A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

      I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.

      II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

      III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

      IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

   B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD.

   A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

   B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.

   A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPICE.

   B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

      I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

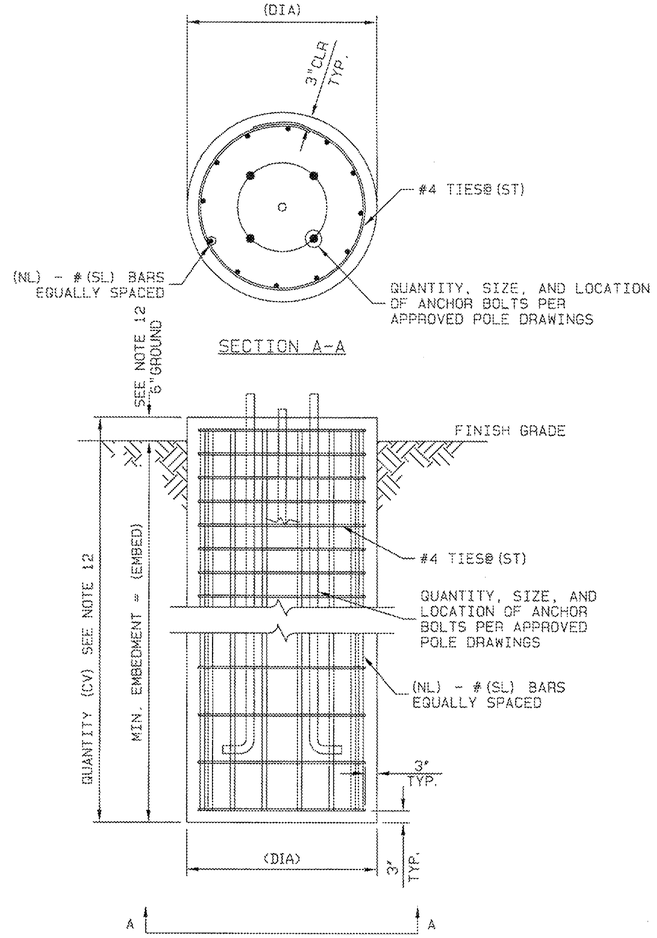
      II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

CALCULATED LMO
CHECKED KJG

TRAFFIC SIGNAL NOTES

LIC-62-5.17



ELEVATION

CONCRETE = (CV) YD^3
REINFORCEMENT = (RW) LB
LAP 14", SEE TABLE

1. FOUNDATION HOLE SHALL BE AUGERED AND FILLED WITH CONCRETE. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 4000 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" AS DETERMINED BY ASTM C143.
2. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60 OR EQUAL.
3. GEOTECHNICAL BORINGS BY TERRACON DATED 11/4/11. CONTRACTOR SHALL FOLLOW REPORT AND CONFIRM SOIL CONDITIONS STATED. FOUNDATION IS DESIGNED ASSUMING A COHESIVE SOIL. SOIL HAS A POSSIBILITY OF BEING HIGHLY SENSITIVE TO MOISTURE CONTENT AND MAY HAVE POOR SHRINKAGE AND SWELLING CHARACTERISTICS. CONTRACTOR SHALL CONTACT GEOTECHNICAL ENGINEER WITH SOIL CONDITIONS. GEOTECHNICAL ENGINEER SHALL BE PRESENT AT TIME OF DRILLING AND INSTALLATION.
4. IF SOIL CONDITIONS DURING CONSTRUCTION DO NOT MEET THE DESCRIPTION GIVEN ABOVE OR IF SOLID BEDROCK IS REACHED BEFORE REACHING THE SPECIFIED EMBEDMENT DEPTH CONTACT HKM ENGINEERING BEFORE CONTINUING EXCAVATION.
5. FOUNDATION TO BE CAST AGAINST UNDISTURBED SOIL. IF CASINGS ARE REQUIRED TO PREVENT CAVING OF THE PIER THE CASING SHALL BE PULLED AFTER USE.
6. FOUNDATION TO BE POURED MONOLITHICALLY. DUE TO THE POSSIBILITY OF EXISTING SENSITIVE SOILS THE CONCRETE SHALL BE POURED THE SAME DAY AS THE EXCAVATION.
7. FOUNDATION DESIGN IS BASED ON WATER TABLE BEING BELOW THE BOTTOM OF THE PIER. CONSTRUCTION BELOW THE WATER TABLE MAY REQUIRE SPECIAL CONSTRUCTION TECHNIGUES TO PREVENT RUPTURING DUE TO HYDROSTATIC PRESSURE.
8. SITE GRADE IS 7H TO 1V OR FLATTER.
9. NO CONDUIT. LAYOUT IS SHOWN. CONDUIT BY OTHERS.
10. CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH OSHA REQUIREMENTS WITH REGARDS TO WORKER ACCESS TO THE EXCAVATION.
11. PROVIDE 3" MINIMUM CONCRETE COVER ON ALL FACES.
12. SITE REQUIREMENTS MAY ADJUST TOP OF FOOTING ABOVE GRADE. CONTRACTOR SHALL FOLLOW PROJECT REQUIREMENTS. CONTRACTOR SHALL DETERMINE TOP OF FOOTING AND ADJUST CONCRETE AND REINFORCING STEEL QUANTIES.
13. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST ACI SPECIFICATIONS AND LOCAL CODES.
14. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE FOUNDATION. MAXIMUM PROJECTION SHALL BE 4".
15. ALL METHODS OF CONSTRUCTION AND INSTALLATION ARE THE RESPONSIBILITY OF THE CONTRACTOR.
16. NO OTHER LOADING CONDITIONS WERE CONSIDERED AND DESIGN IS BASED ON WIND LOADS ONLY. FATIQUE ANALYSIS WAS PART OF STRUCTURE DESIGN.
17. CONTRACTOR SHALL FOLLOW OHIO DOT SPECIFICATIONS FOR INSTALLATION OF FOUNDATION.

GENERAL NOTES

FOUNDATION LOADS HAVE BEEN CALCULATED BASED ON 90MPH WIND. AN OVERTURNING (FS = 2.0) AND TORSIONAL (FS = 1.1) WERE USED IN DESIGN.

CONTRACTOR TO VERIFY NUMBER OF ANCHOR BOLTS, SIZE, AND BOLT CIRCLE.

MEDIUM COHESIVE SOIL
c = 1500 PSF
ø = 30°
γ = 110 PCF
υ = 0.30 (FRICTION FACTOR)

SOIL DATA IS BASED UPON SOIL BORING B-3. OTHER STANDARD SOIL PARAMETERS USED. CONTRACTOR TO CONFIRM SOIL CONDITIONS ON SITE. UPPER 2'-0" PROVIDES NO PASSIVE RESISTANCE. BORINGS NEAR TO STRUCTURE.

UPPER SOIL LAYER

VERY STIFF COHESIVE
c = 2600 PSF
ø = 36°
γ = 120 PCF
υ = 0.35

MIDDLE SOIL LAYER

STIFF COHESIVE
c = 2000 PSF
ø = 34°
γ = 120 PCF
υ = 0.33

LOWER SOIL LAYER

AXIAL	=	4,190	LB
$SHEAR_X$	=	0	LB
$SHEAR_Y$	=	2,663	LB
$MOMENT_X$	=	94,954	FT-LB
$MOMENT_Y$	=	0	FT-LB
TORSION	=	52,174	FT-LB

50' FOUNDATION LOADS (POLE)

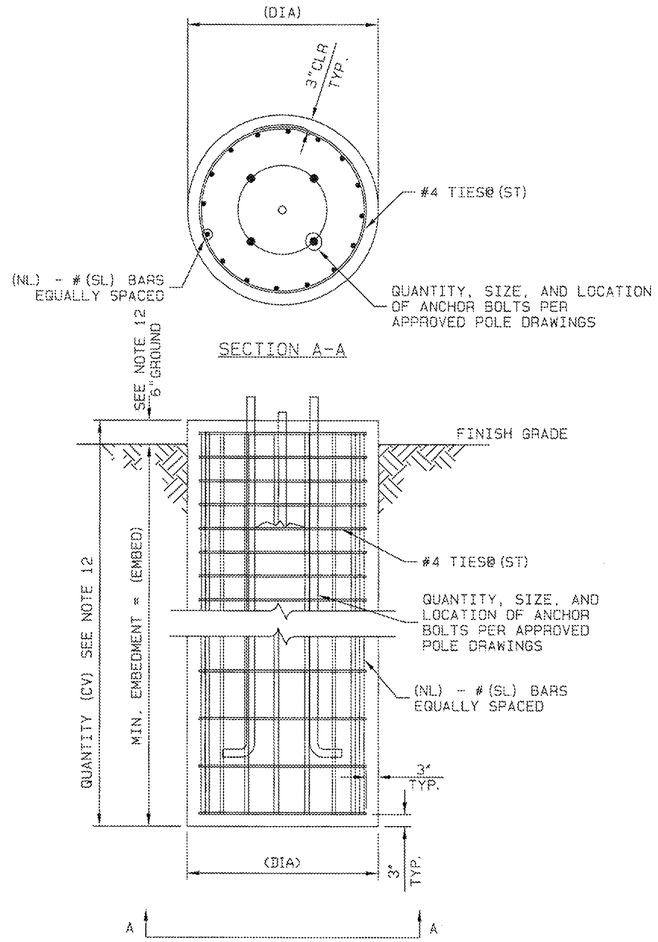
POLE NO.	CAISSON DATA (EA)		LONGITUDINAL BARS (EA)		TRANSVERSE BARS (EA)
	DIA (FT)	EMBED (FT)	NL (QTY)	SL (SIZE)	(ST)
50' MA	3.5	10.0	12	9	#4 TIES @ 6" TOP 4' #4 TIES @ 12" LOWER 6'

12-22-11

CALCULATED LMO
CHECKED SDS

FOUNDATION DESIGN DETAILS

LIC-62-5.17



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υ = 0.35

MIDDLE SOIL LAYER

STIFF COHESIVE
c = 2000 PSF
ø = 34°
γ = 120 PCF
υ = 0.33

LOWER SOIL LAYER

AXIAL	= 6,909	LB
$SHEAR_X$	= 0	LB
$SHEAR_Y$	= 3,408	LB
$MOMENT_X$	= 144,471	FT-LB
$MOMENT_Y$	= 0	FT-LB
TORSION	= 51,846	FT-LB

66' & 42' FOUNDATION LOADS (POLE)

POLE NO.	CAISSON DATA (EA)		LONGITUDINAL BARS (EA)		TRANSVERSE BARS (EA)
	DIA (FT)	EMBED (FT)	NL (QTY)	SL (SIZE)	(ST)
66'& 42' MA	4.0	12.0	16	10	#4 TIES @ 6" TOP 5' #4 TIES @ 12" LOWER 7'

STATE OF OHIO
MICHAEL L. SEIDL
E-68983
REGISTERED
PROFESSIONAL ENGINEER

12-22-11

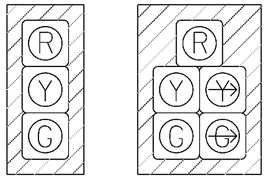
CALCULATED LMO
CHECKED SDS

FOUNDATION DESIGN DETAILS

LIC-62-5.17

34C
45

SIGNALS



#2,3,4,5,6,7 #1

12" L.E.D. WITH BACKPLATE

NOTES:

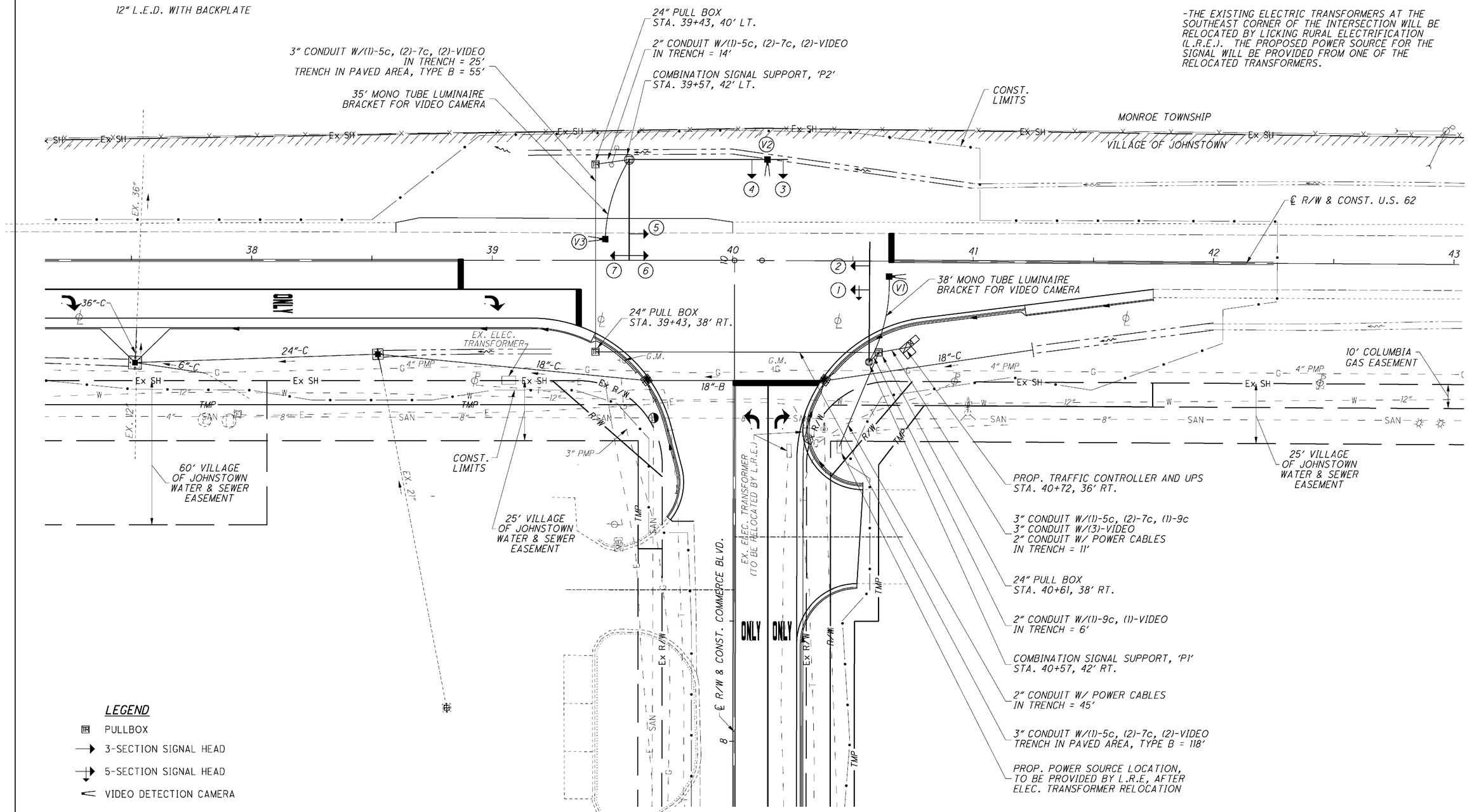
-SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE MAST ARM WITH PAINTED, DECORATIVE PIPE HANGER ASSEMBLY.

-CAMERA V2 SHALL BE MOUNTED WITH UNIVERSAL MOUNTING BRACKET (ASTROBRACKET) FOR MAST ARM

-CAMERAS V1 & V3 SHALL BE MOUNTED WITH ITERIS BRACKET, MODEL #: CAMBRKT-4.

-ALL CAMERA MOUNTING BRACKETS, SIGNAL HEAD MOUNTING ASSEMBLIES, AND CAMERA BODIES INCLUDING VISORS SHALL BE PAINTED BLACK TO MATCH MAST ARMS.

-THE EXISTING ELECTRIC TRANSFORMERS AT THE SOUTHEAST CORNER OF THE INTERSECTION WILL BE RELOCATED BY LICKING RURAL ELECTRIFICATION (L.R.E.). THE PROPOSED POWER SOURCE FOR THE SIGNAL WILL BE PROVIDED FROM ONE OF THE RELOCATED TRANSFORMERS.



LEGEND

- PULLBOX
- 3-SECTION SIGNAL HEAD
- 5-SECTION SIGNAL HEAD
- VIDEO DETECTION CAMERA

HORIZONTAL SCALE IN FEET
0 10 20 40

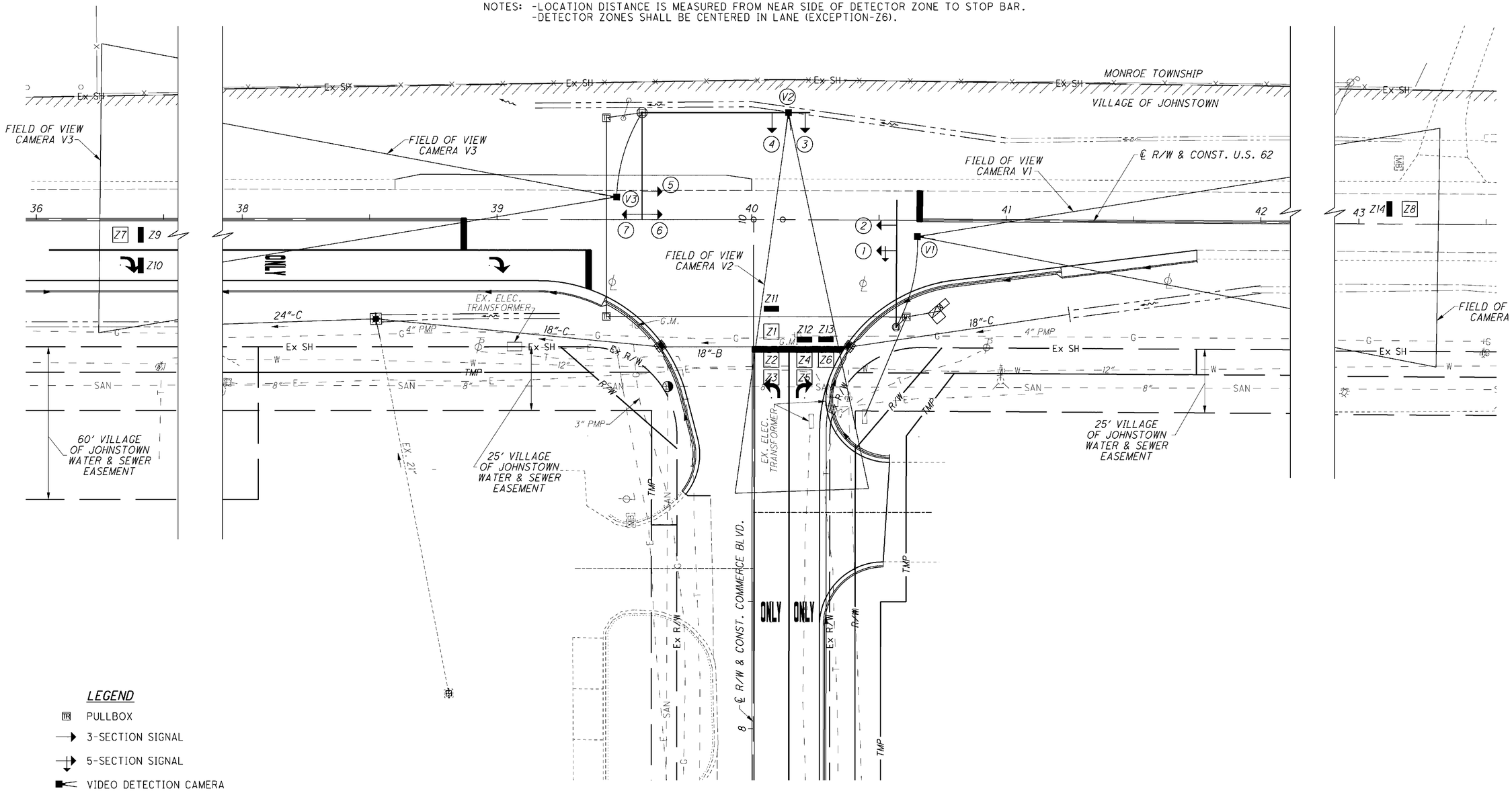
CALCULATED LMO
CHECKED SDS

TRAFFIC SIGNAL PLAN

LIC-62-5.17

VIDEO DETECTOR DATA							
DETECTOR #	LOCATION (FROM STOP BAR)	SIZE	TYPE	DIRECTIONALITY	DELAY	PHASE	DESCRIPTION
Z1	3' IN FRONT	6'x6'	PRESENCE	ENABLED	5 SEC	ϕ3	NB LT 1
Z2	0' BEHIND	6'x6'	PRESENCE	ENABLED	5 SEC	ϕ3	NB LT 2
Z3	7' BEHIND	6'x6'	PRESENCE	ENABLED	5 SEC	ϕ3	NB LT 3
Z4	0' BEHIND	6'x6'	PRESENCE	DISABLED	8 SEC	ϕ8	NB RT 1
Z5	7' BEHIND	6'x6'	PRESENCE	DISABLED	8 SEC	ϕ8	NB RT 2
Z6	0' BEHIND	6'x6'	PRESENCE	DISABLED	8 SEC	ϕ8	NB RT 3
Z7	250' BEHIND	6'x6'	PULSE	DISABLED		ϕ2	EB
Z8	250' BEHIND	6'x6'	PULSE	DISABLED		ϕ6	WB
Z9	245' BEHIND	2'x6'	COUNT	ENABLED			EB TH
Z10	295' BEHIND	2'x6'	COUNT	ENABLED			EB RT
Z11	15' IN FRONT	2'x6'	COUNT	ENABLED			NB LT
Z12	3' IN FRONT	2'x6'	COUNT	ENABLED			NB RT1
Z13	3' IN FRONT	2'x6'	COUNT	ENABLED			NB RT2
Z14	245' BEHIND	2'x6'	COUNT	ENABLED			WB TH

NOTES: -LOCATION DISTANCE IS MEASURED FROM NEAR SIDE OF DETECTOR ZONE TO STOP BAR.
-DETECTOR ZONES SHALL BE CENTERED IN LANE (EXCEPTION-Z6).



LEGEND

- PULLBOX
- 3-SECTION SIGNAL
- 5-SECTION SIGNAL
- VIDEO DETECTION CAMERA

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED LMO
CHECKED SDS

VIDEO DETECTION PLAN

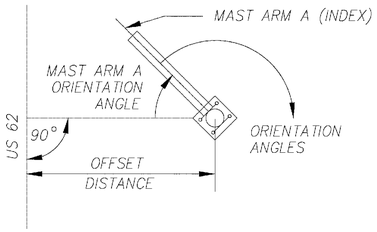
LIC-62-5.17

FIELD WIRING HOOKUP CHART			
SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1 (EB RT)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
	←	ϕ3 Y	
	←	ϕ3 G	
2 (EB)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
3 (NB)	R	ϕ8 R	R
	Y	ϕ8 Y	
	G	ϕ8 G	
4 (NB LT)	R	ϕ3 R	R
	Y	ϕ3 Y	
	G	ϕ3 G	
	←	ϕ3 Y	
	←	ϕ3 G	
5 (WB)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
6 (WB)	R	ϕ6 R	Y
	Y	ϕ6 Y	
	G	ϕ6 G	
7 (EB)	R	ϕ2 R	Y
	Y	ϕ2 Y	
	G	ϕ2 G	
8 (EB LT) (FUTURE)	R	ϕ5 R	Y
	Y	ϕ5 Y	
	G	ϕ5 G	
	←	ϕ5 Y	
	←	ϕ5 G	
9 (WB LT) (FUTURE)	R	ϕ1 R	Y
	Y	ϕ1 Y	
	G	ϕ1 G	
	←	ϕ1 Y	
	←	ϕ1 G	

(SEE WIRING DIAGRAM FOR FUTURE SIGNAL HEADS)

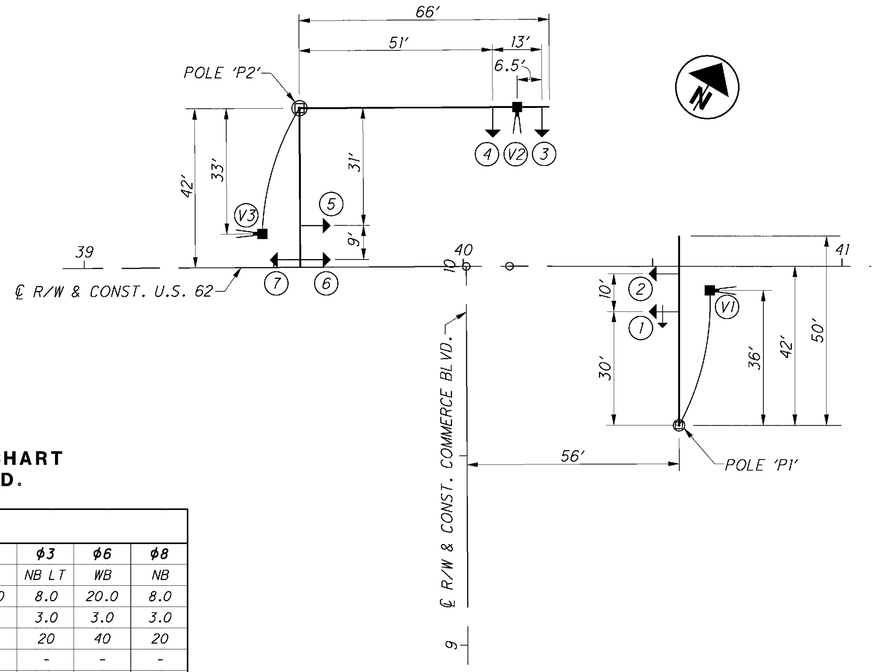
MAST ARM POLE ORIENTATION DETAIL

NOTES:
1. ALL ANGLES MEASURED CLOCKWISE.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM)

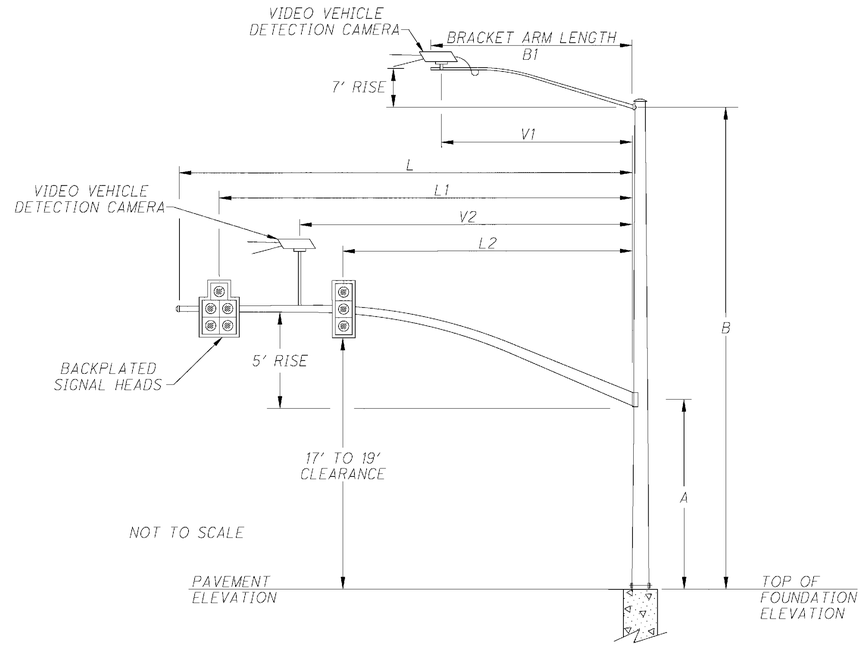


SUPPORT NO.	SIGNAL SUPPORT														ORIENTATION ANGLES MAST ARM "A"		
	POLE DESIGN NO.	POLE HEIGHT (FT.)	FOUNDATION STATION	FOUNDATION OFFSET	L (FT)	L1 (FT)	L2 (FT)	BRACKET ARM LENGTH (FT.) B1	V1 (FT)	V2 (FT)	MAST ARM ATTACHMENT HEIGHT "A"	LUMINAIRE BRACKET ATTACHEMENT HEIGHT "B"	TOP OF FOUNDATION ELEVATION	MAST ARM A ANGLE (DEG.)	MAST ARM "B"	BRACKET ARM	HANDHOLE
P1	SPEC.	25.00	40+57.0	42' RT.	50	40	30	38	36	-	13	24	1149.8	0°	-	0°	180°
P2	SPEC.	29.25	39+57.0	42' LT.	66	64	51	-	-	57.5	17	-	1144.6	270°	-	-	270°
					42	40	31	35	33	-	17	28	-	-	90°	90°	-

POLE DIAGRAM



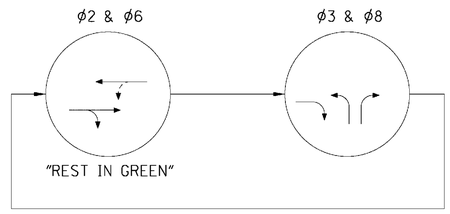
SIGNAL & CAMERA PLACEMENT



TRAFFIC SIGNAL TIMING CHART
U.S. 62/ COMMERCE BLVD.

TIMING SCHEDULE					
INTERVAL OR FEATURE		ϕ2	ϕ3	ϕ6	ϕ8
INTERSECTION MOVEMENT		EB	NB LT	WB	NB
MINIMUM GREEN (TRUE)	(SEC.)	20.0	8.0	20.0	8.0
PASSAGE TIME	(SEC.)	3.0	3.0	3.0	3.0
MAXIMUM GREEN I	(SEC.)	40	20	40	20
MAXIMUM GREEN II	(SEC.)	-	-	-	-
YELLOW CHANGE	(SEC.)	4.6	2.8	3.7	2.8
ALL RED CLEARANCE	(SEC.)	2.0	2.0	1.8	2.0
ADDED INITIAL	(SEC./ACTUATION)	-	-	-	-
MAXIMUM INITIAL	(SEC.)	20	20	20	20
TIME BEFORE REDUCTION	(SEC.)	-	-	-	-
TIME TO REDUCE	(SEC.)	-	-	-	-
MINIMUM GAP	(SEC.)	3.0	3.0	3.0	3.0
START UP GREEN		X	-	X	-
START UP YELLOW		-	-	-	-
START UP RED		-	-	-	-
RECALL MINIMUM		X	-	X	-
RECALL MAXIMUM		-	-	-	-
WALK		-	-	-	-
FLASHING DON'T WALK		-	-	-	-
FLASH		Y	R	Y	R

PROPOSED PHASING DIAGRAM



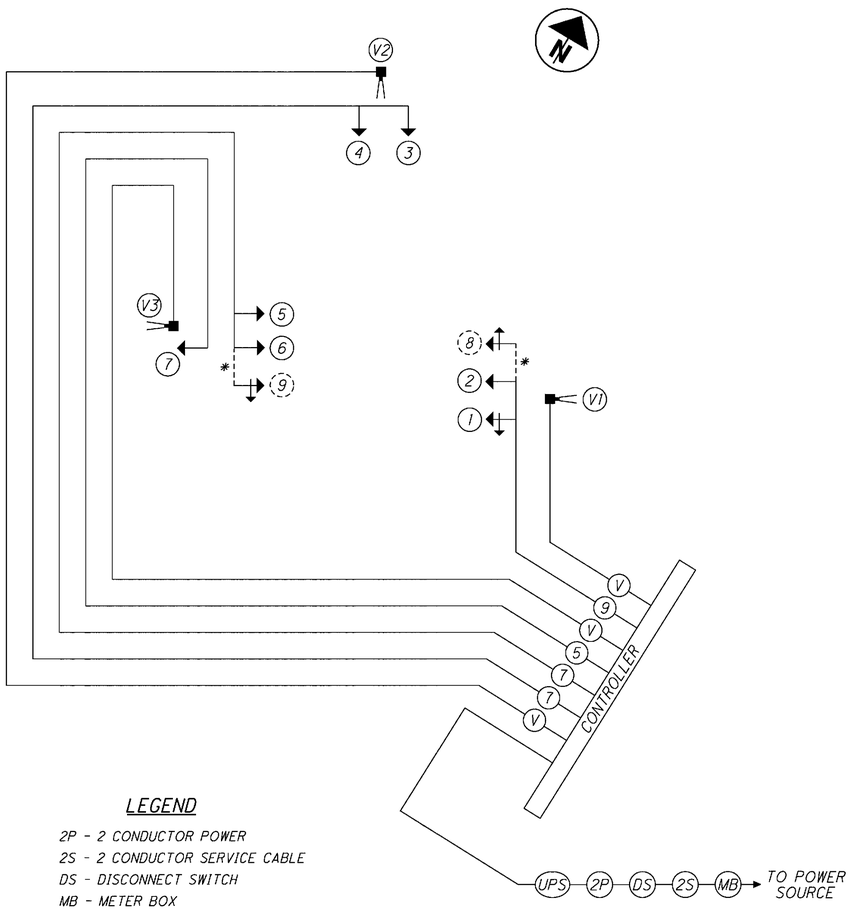
CALCULATED LMO
CHECKED SDS

TRAFFIC SIGNAL DETAILS

LIC-62-5.17

37
45

WIRING DIAGRAM



LEGEND

2P - 2 CONDUCTOR POWER
2S - 2 CONDUCTOR SERVICE CABLE
DS - DISCONNECT SWITCH
MB - METER BOX
UPS - UNINTERUPTIBLE POWER SUPPLY
V - COMBINATION VIDEO POWER / COAXIAL CABLE
* - CONDUCTORS ARE PROPERLY SIZED FOR FUTURE SIGNAL HEADS. FUTURE SIGNAL HEAD INSTALLATION WILL PROVIDE NEW CONDUCTORS / SPLICES ACCORDINGLY.

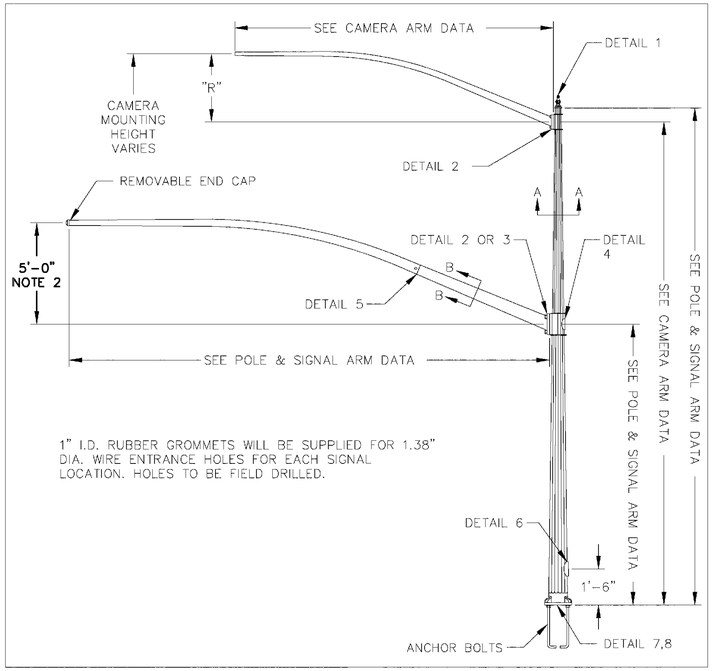
TRAFFIC SIGNAL SUBSUMMARY

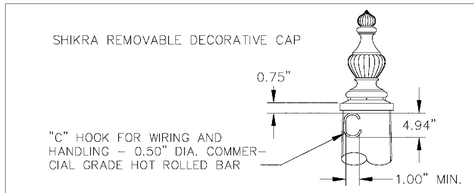
ITEM	ITEM EXT.	TOTAL	UNIT	ITEM DESCRIPTION	SEE SHEET NO.
625	25400	76	FT	CONDUIT, 2", 725.04	
625	25500	220	FT	CONDUIT, 3", 725.04	
625	29003	101	FT	TRENCH, 24" DEEP, AS PER PLAN	32
625	29600	173	FT	TRENCH IN PAVED AREA, TYPE B	
625	30706	3	EACH	PULL BOX, 725.08, 24"	
625	32001	3	EACH	GROUND ROD, AS PER PLAN	31
632	04911	6	EACH	VEHICULAR SIGNAL HEAD, (LED) BLACK, 3 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	32
632	04921	1	EACH	VEHICULAR SIGNAL HEAD, (LED) BLACK, 5 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	32
632	25000	7	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
632	40500	318	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
632	40700	670	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
632	40900	107	FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG	
632	64011	2	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	33
632	67200	10	FT	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG	
632	69800	75	FT	SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG	
632	70001	1	EACH	POWER SERVICE, AS PER PLAN	33
632	90400	1	EACH	SIGNALIZATION, MISC.: COMBINATION SIGNAL SUPPORT, 29.25' HIGH, 17.0" BASE, 66' MAST ARM, 42' MAST ARM, 35' LUMINAIRE BRACKET, BLACK, ASSEMBLY	32
632	90400	1	EACH	SIGNALIZATION, MISC.: COMBINATION SIGNAL SUPPORT, 25' HIGH, 15.0" BASE, 50' MAST ARM, 38' LUMINAIRE BRACKET, BLACK, ASSEMBLY	32
633	01581	1	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS1, AS PER PLAN	33
633	67001	1	EACH	CABINET RISER, AS PER PLAN	34
633	67101	1	EACH	CABINET FOUNDATION, AS PER PLAN	33
633	67201	2	EACH	CONTROLLER WORK PAD, AS PER PLAN	34
633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	34
816	30001	1	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN	34

CALCULATED LMO
CHECKED SDS

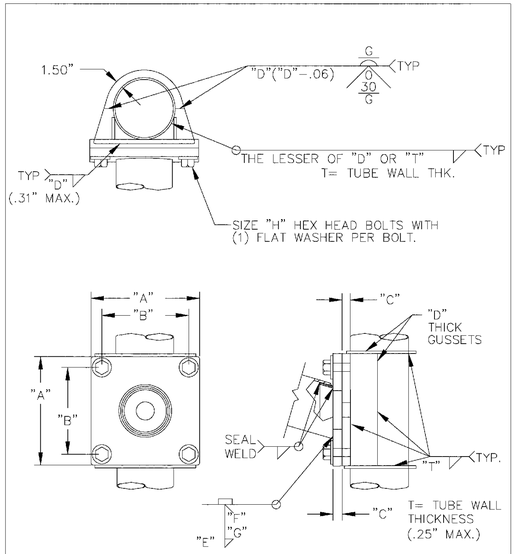
TRAFFIC SIGNAL DETAILS

LIC-62-5.17



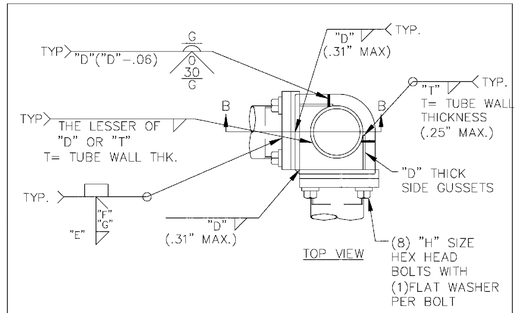


DETAIL 1 | DECORATIVE CAP ASSEMBLY



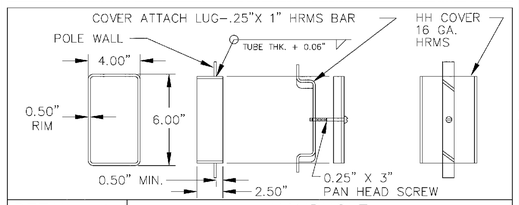
ARM TO PLATE WELD "E"	BEVEL SIZING "F"X"G"
(ARM THICK. + .25") X ARM THICK.	.19" X 30°

DETAIL 2 | SINGLE ARM ATTACHMENT

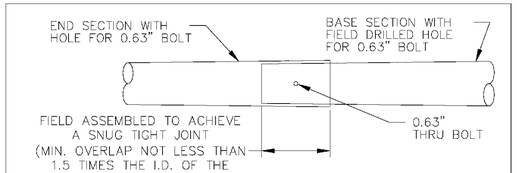


ARM TO PLATE WELD "E"	BEVEL SIZING "F"X"G"
(ARM THICK. + .25") X ARM THICK.	.19" X 30°

DETAIL 3 | DOUBLE ARM ATTACHMENT

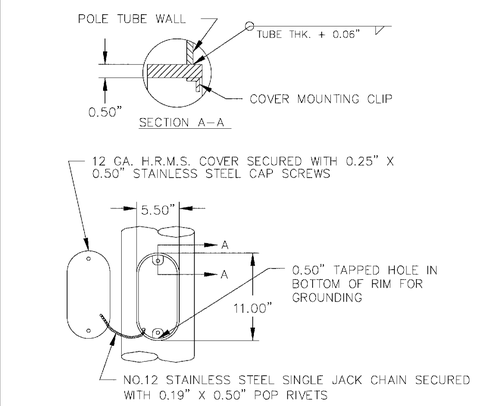


DETAIL 4 | HANDHOLE

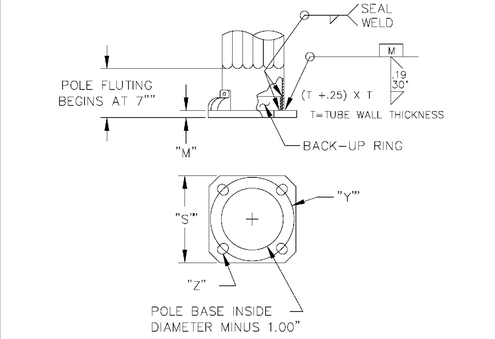


ARM SECTION DATA				
ARM SPAN (FT)	BASE SECTION		END SECTION	
	LENGTH (FT)	GAUGE/THK	LENGTH (FT)	GAUGE/THK
66.00	20.13	0.313	48.64	3

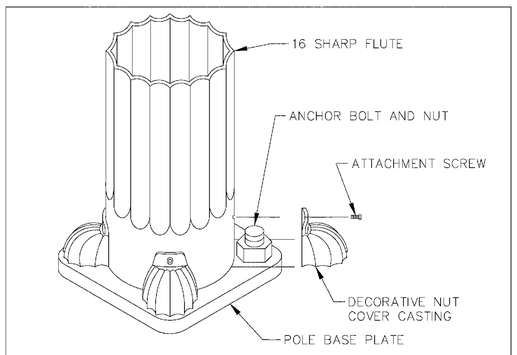
DETAIL 5 | TWO PIECE ARM DETAIL



DETAIL 6 | HANDHOLE



DETAIL 7 | POLE BASE



DETAIL 8 | DECORATIVE NUT COVER DETAIL

MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
TAPERED TUBES	A595 GR.A OR A572	55
POLE BASE	A36	36
ARM CONNECTIONS	A36	36
ARM CONN. BOLTS	A325	
GALVANIZING	A123 & A153	
ANCHOR BOLTS	BY OTHERS	

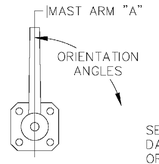
FINISH DATA

BASE COAT: HOT DIP GALVANIZE TO ASTM A123

FINISH COAT: TGIC OR URETHANE POLYESTER POWDER

COLOR: BLACK (FED. NO. 17038)

1. ALL ANGLES MEASURED CLOCKWISE FROM MAST ARM "A" AS VIEWED FROM THE SMALL END OF THE POLE.
2. BASE PLATE IS SQUARE WITH MAST ARM "A". ANCHOR BOLT HOLE AT 45° FROM THE MAST ARM.

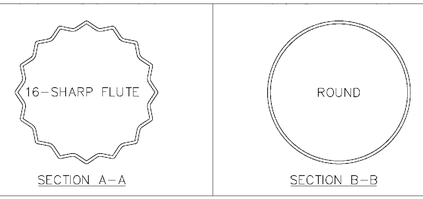


SEE POLE AND SIGNAL ARM DATA FOR POLE COUPLING ORIENTATIONS

RADIAL INDEX

ARM ATTACHMENT DATA

POLE	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"H"
SIGNAL ARM ATTACHMENT					
P1	21.25	18.00	1.75	0.250	1.25" X 3.75"
P2	23.75	20.00	2.00	0.313	1.50" X 4.25"
LUMINAIRE ARM ATTACHMENT					
P1	19.25	16.00	1.50	0.250	1.25" X 3.25"
P2	21.25	18.00	1.75	0.250	1.25" X 3.75"



SHAFT CROSS SECTION

POLE AND SIGNAL ARM DATA

POLE REF.	STATION	QTY.	POLE TUBE				POLE BASE				ANCHOR BOLT				SIGNAL ARM TUBE					ORIENT. FROM MAST ARM "A"			CAMERA ARM DATA					
			BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	GAUGE OR THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)	MAST ARM	ATTACH HEIGHT (FT)	FIXED END DIA. (IN)	GAUGE OR THICK (IN)	SPAN (FT)	MAST ARM "B"	UPPER HAND HOLE	LOWER HAND HOLE	SPAN (FT)	ATTACH HEIGHT (FT)	FIXED END DIA. (FT)	FREE END DIA. (FT)	GAUGE OR THICK (IN)	RISE "R" (FT)
P1	40+57.0	1	15.00	11.50	25.00	0.250	21.00	20.00	1.75	2.13	1.75	84	6	10	A	13.00	13.00	3	50.00	N/A	180°	180°	38.00	24.00	8.00	2.54	11	7.00
P2	39+57.0	1	17.00	12.91	29.25	0.250	22.50	22.00	2.00	2.38	2.00	90	6	12	A	17.00	13.00	Det. 5	66.00	90°	225°	180°	35.00	28.00	8.00	2.96	11	7.00
															B	17.00	17.00	3	42.00									

CALCULATED LMO
CHECKED SDS

TRAFFIC SIGNAL DETAILS

LIC-62-5.17

MATERIAL SPECIFICATIONS FOR GENERATOR POWER PANEL EQUIPMENT

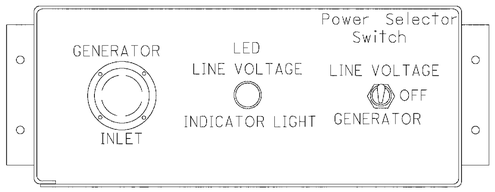
GENERATOR INLET --- The inlet shall be 30 amp, 125/250V, locking, four (4) wire grounding and meet the NEMA configuration number L14-30-P 30A 125/250V specification. The inlet shall be a Hubbell catalog #2715.

LINE VOLTAGE GENERATOR SWITCH --- The switch shall be 30 amp, 125/250V AC, two (2) pole, three (3) position (On, Off, On). The switch shall be a Hubbell catalog #1388.

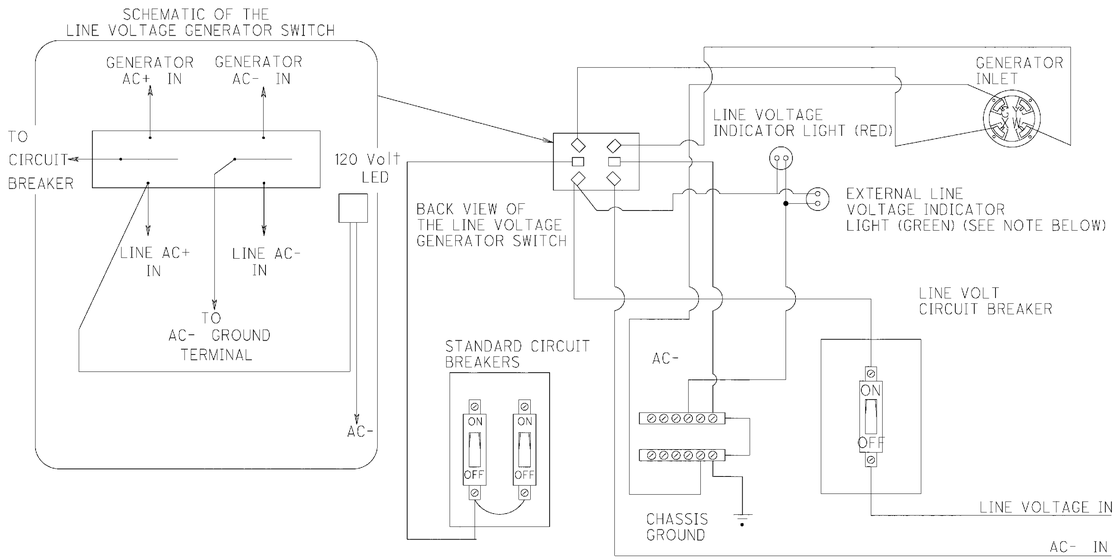
LINE VOLTAGE INDICATOR LIGHT --- The indicator light shall be a 125V AC light emitting diode with a red lens.

LINE VOLTAGE CIRCUIT BREAKER --- The circuit breaker shall be single pole single throw and a minimum of 30 amps. The amperage shall be increased to accomodate greater loads, if necessary. The gauge of the power cable shall be of proper size per the N.E.C.

EXTERNAL LINE VOLTAGE INDICATOR LIGHT --- The indicator light shall be a 1-inch (25mm) waterproof NEMA 4X or IP66 LED lamp with a GREEN lens.



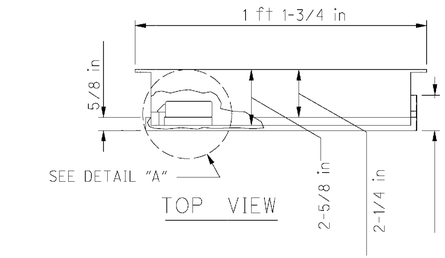
FRONT VIEW OF GENERATOR POWER PANEL



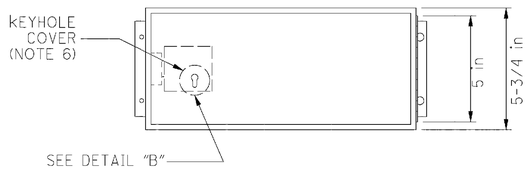
ELECTRICAL HOOKUP DETAIL FOR THE GENERATOR POWER PANEL

NOTE : EXTERNAL LINE VOLTAGE INDICATOR LIGHT required when called for in the plans. EXTERNAL LINE VOLTAGE INDICATOR LIGHT shall be located on the enclosure exterior for visibility from the adjacent roadway when all cabinet, and generator panel doors are closed.

GENERATOR POWER PANEL ENCLOSURE



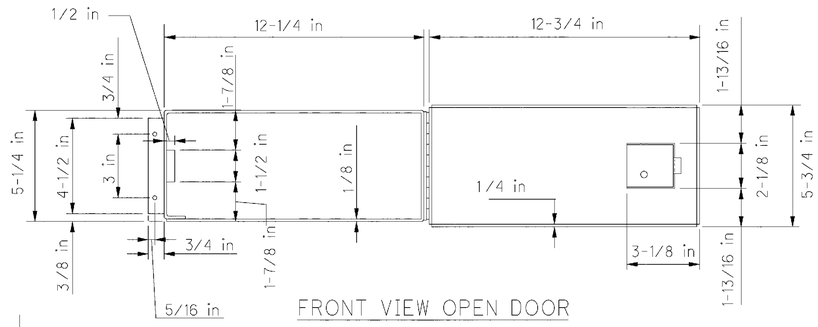
TOP VIEW



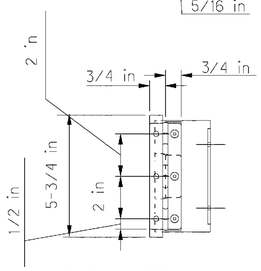
FRONT VIEW CLOSED DOOR

NOTES

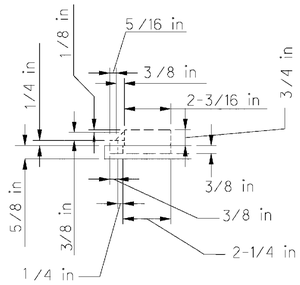
1. The enclosure shall be constructed Of 1/8 inch thick aluminum.
2. The lock shall be the standard police door type, keyed with the standard flasher door skeleton key.
3. The door shall be sealed with a foam rubber gasket to prevent moisture from entering the enclosure.
4. The enclosure shall be mounted onto the outside of the controller cabinet with non-accessible bolts and sealed with a high quality silicon caulk at all surfaces touching the cabinet.
5. The hinge shall be of stainless steel or equivalent corrosive-resistant material.
6. Keyhole shall be covered with a movable circular aluminum cover with top pivot pin.



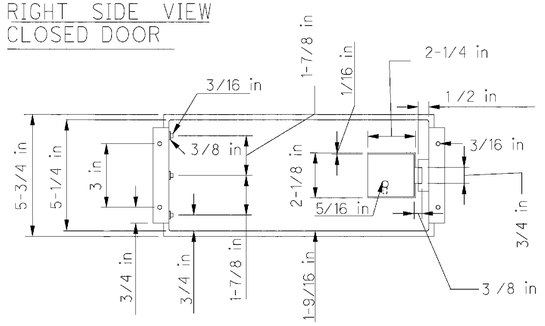
FRONT VIEW OPEN DOOR



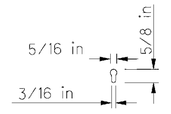
RIGHT SIDE VIEW CLOSED DOOR



DETAIL "A"



BACK VIEW CLOSED DOOR



DETAIL "B"

OFFICE OF TRAFFIC ENGINEERING

DESIGNED | REVIEWED LAM

REVISION DATE 10/21/11 | CHECKED

PIS NUMBER 203010

PLAN INSERT SHEET

GENERATOR POWER PANEL

LIC-62-5.17

1 / 1

40 / 45

RIGHT OF WAY
LEGEND SHEET
LIC-62-5.17

VILLAGE OF JOHNSTOWN
MONROE TOWNSHIP
LICKING COUNTY

UTILITY OWNERS	
TYPE	NAME & ADDRESS
ELECTRIC	AMERICAN ELECTRIC POWER 850 TECH CENTER DRIVE GAHANNA, OHIO 43230 (614) 883-6831
ELECTRIC	LICKING RURAL ELECTRIFICATION 11339 MT. VERNON ROAD P.O. BOX 455 UTICA, OHIO 43080-0455 (740) 348-1149
TELEPHONE	CENTURYLINK 441 WEST BROAD STREET PATASKALA, OHIO 43062 (740) 927-8282
WATER, STORM, SANITARY & TRAFFIC	VILLAGE OF JOHNSTOWN 599 S. MAIN STREET P.O. BOX 457 JOHNSTOWN, OHIO 43031 (740) 967-4618
GAS	COLUMBIA GAS OF OHIO 3550 JOHNNY APPLESEED CT. COLUMBUS, OHIO 43231 (614) 818-2133
CABLE	TIME WARNER CABLE 3760 INTERCHANGE ROAD COLUMBUS, OHIO 43204 (614) 481-5262

NOTES: THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

STRUCTURE KEY

RESIDENTIAL

COMMERCIAL

OUT-BUILDING

LEGEND:
WL = FEE SIMPLE WITH LIMITATION OF ACCESS
WD = WARRANTY DEED
BS = BILL OF SALE
PRW = PROPERTY RIGHT FEE SIMPLE
SH = STANDARD HIGHWAY EASEMENT
LA = LIMITED ACCESS EASEMENT
T = TEMPORARY EASEMENT
SL = SLOPE EASEMENT
S = SEWER EASEMENT
CH = CHANNEL EASEMENT
FL = FLOW EASEMENT
U = UTILITY EASEMENT
A = AERIAL EASEMENT
PRE = PROPERTY RIGHT
SC = SCENIC EASEMENT
V = IN NAME OF ANOTHER STATE AGENCY, LPA, ETC.
R = SPECIAL RESERVATION
WA = WORK AGREEMENT
SA = SPECIAL AGREEMENT AND WAIVER OF DAMAGES

CONVENTIONAL SYMBOLS

County Line
Township Line
Section Line
Corporation Line
Fence Line (Ex)
Fence Line (Pr)
Center Line
Right of Way (Ex)
Right of Way (Pr)
Standard Highway Ease.(Ex)
Temporary Right of Way
Channel Ease. (Pr)
Utility Ease. (Ex)
Railroad
Guardrail (Ex)
Guardrail (Pr)
Construction Limits
Edge of Pavement (Ex)
Edge of Pavement (Pr)
Edge of Shoulder (Ex)
Edge of Shoulder (Pr)
Ditch / Creek (Ex)
Ditch / Creek (Pr)
Tree Line (Ex)
Ownership Hook Symbol , Example
Property Line Symbol , Example
Break Line Symbol , Example
Tree (Pr) , Tree (Ex) , Shrub (Ex)
Tree (Remove) , Shrub (Remove)
Evergreen (Ex) , Stump
Evergreen (Remove) , Stump (Remove)
Wetland (Pr) , Grass (Pr) , Aerial Target
Post (Ex) , Mailbox (Ex) , Mailbox (Pr)
Light (Ex) , Telephone Marker (Ex)
Fire Hydrant (Ex) , Water Meter (Ex)
Water Valve (Ex) , Utility Valve Unknown (Ex.)
Telephone Pole (Ex) , Power Pole (Ex)
Light Pole (Ex)

INDEX OF SHEETS:

PROJECT DESCRIPTION

IMPROVEMENT OF THE INTERSECTION OF U.S. 62 AND COMMERCE BLVD. VIA THE ADDITION OF A RIGHT TURN LANE ON U.S. 62 AND COMMERCE BLVD. AND THE INSTALLATION OF A MAST ARM TRAFFIC SGNAL.

PROJECT CONTROL

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
PROJECT ADJUSTMENT FACTOR - 0.99993879

PLANS PREPARED BY:

FIRM NAME : W.E. STILSON CONSULTING. GROUP

PLANS PREPARED BY: JOHN J. RAAB

FIELD REVIEW BY: JOHN J. RAAB
DATE COMPLETED: 12/5/11

OWNERSHIP VERIFIED BY: JOHN J. RAAB
DATE COMPLETED: 12/5/11

PLAN COMPLETION DATE: 12/6/11

I, John J. Raab, P.S. have conducted a survey of the existing conditions for the Ohio Department of Transportation on September 2, 2010. The results of the survey are contained herein.

Underground utility locations are shown for informational purposes only. Though they are believed to be accurate, their location is as marked on the ground by the utility company per OUPS and OGPUPS Confirmation Numbers A113103549, A113103550, A113103555, A113103557 and those markings subsequently being surveyed as part of this project.

The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System, Ohio South Zone by ties to ODOT CORS network using station, OHLI. The project adjustment factor used for this project is 0.99993879. As a part of this project I have reestablished the locations of the existing property lines and centerline of existing Right of Way for property takes contained herein.

As part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take, and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels shown herein.

As part of this work I have set monuments at the proposed property corners, Section Corners and other points shown herein.

The iron pins and caps will be set in the "Adjustable Centerline Monument Assembly Box" installed by the construction contractor, after completion of construction, by the contractor's surveyor. This work will be done in accordance with OAC 4733-37 as cited below.

All of my work contained herein was conducted in accordance with the Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless so noted.

The words I and my, as used herein, are to mean that either myself or someone working under my direct supervision.

John J. Raab, Professional Land Surveyor #7863

Date: 12/6/11

SURVEYORS SEAL

STATE OF OHIO
JOHN JEFFREY RAAB
7863
REGISTERED PROFESSIONAL SURVEYOR

SIGNED:
DATE: 12/6/11

CALCULATED LAM
CHECKED JJR

PID NO. 89542

FEDERAL PROJECT NO. E110496

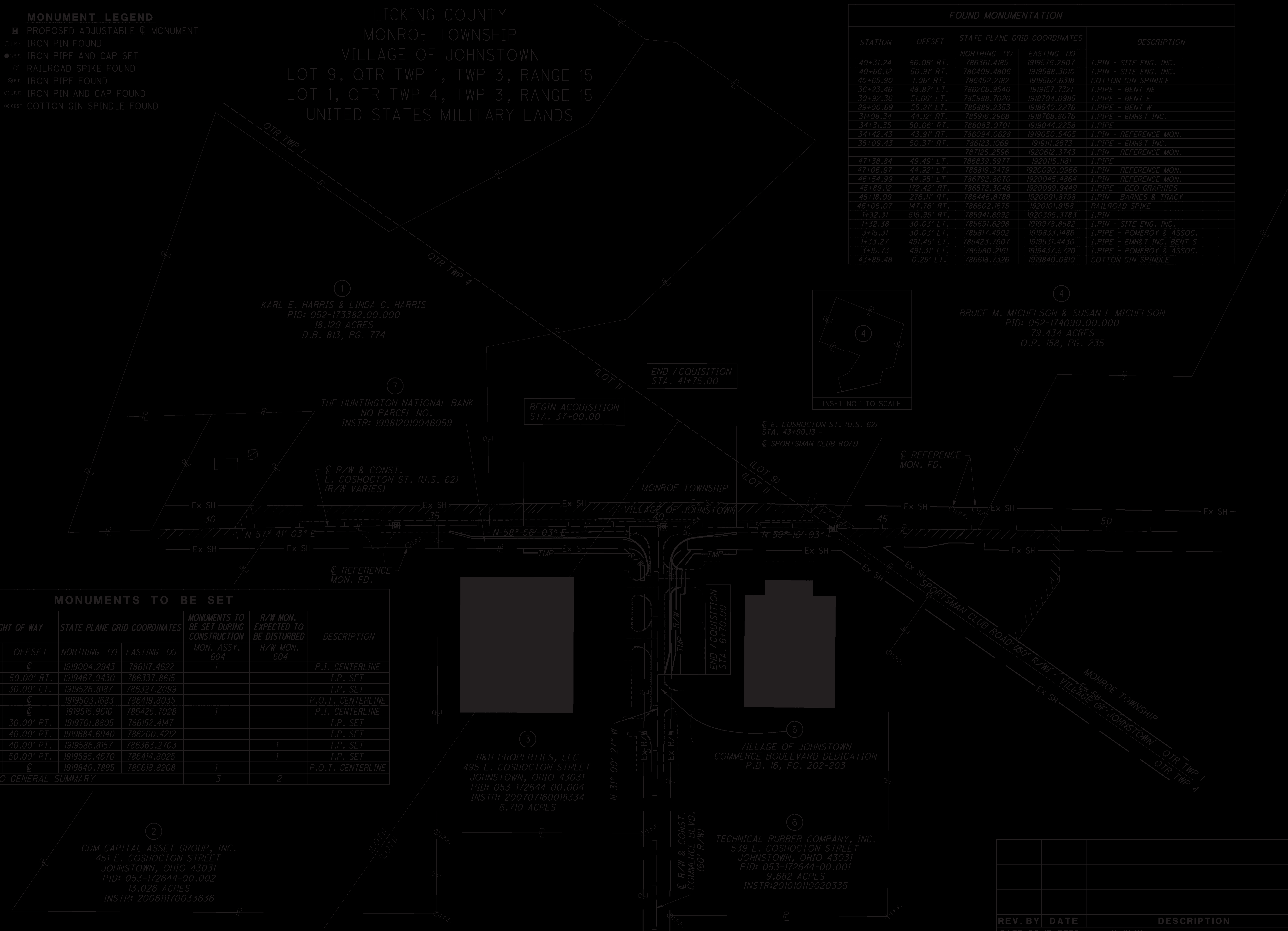
RIGHT OF WAY LEGEND SHEET

LIC-62-5.17

LICKING COUNTY
MONROE TOWNSHIP
VILLAGE OF JOHNSTOWN
LOT 9, QTR TWP 1, TWP 3, RANGE 15
LOT 1, QTR TWP 4, TWP 3, RANGE 15
UNITED STATES MILITARY LANDS

MONUMENT LEGEND

- PROPOSED ADJUSTABLE ℄ MONUMENT
- IRON PIN FOUND
- IRON PIPE AND CAP SET
- RAILROAD SPIKE FOUND
- IRON PIPE FOUND
- IRON PIN AND CAP FOUND
- COTTON GIN SPINDLE FOUND



FOUND MONUMENTATION				
STATION	OFFSET	STATE PLANE GRID COORDINATES		DESCRIPTION
		NORTHING (Y)	EASTING (X)	
40+31.24	86.09' RT.	786361.4185	1919576.2907	I.PIN - SITE ENG. INC.
40+66.12	50.91' RT.	786409.4806	1919588.3010	I.PIN - SITE ENG. INC.
40+65.90	1.06' RT.	786452.2182	1919562.6318	COTTON GIN SPINDLE
36+23.46	48.87' LT.	786266.9540	1919157.7321	I.PIPE - BENT NE
30+92.36	51.66' LT.	785988.7020	1918704.0985	I.PIPE - BENT E
29+00.69	55.21' LT.	785889.2353	1918540.2276	I.PIPE - BENT W
31+08.34	44.12' RT.	785916.2968	1918768.8076	I.PIPE - EMH&T INC.
34+31.35	50.06' RT.	786083.0701	1919044.2258	I.PIPE
34+42.43	43.91' RT.	786094.0628	1919050.5405	I.PIN - REFERENCE MON.
35+09.43	50.37' RT.	786123.1069	1919111.2673	I.PIPE - EMH&T INC.
		787125.2596	1920612.3743	I.PIN - REFERENCE MON.
47+38.84	49.49' LT.	786839.5977	1920115.1181	I.PIPE
47+06.97	44.92' LT.	786819.3479	1920090.0966	I.PIN - REFERENCE MON.
46+54.99	44.95' LT.	786792.8070	1920045.4864	I.PIN - REFERENCE MON.
45+89.12	172.42' RT.	786572.3046	1920099.9449	I.PIPE - GEO GRAPHICS
45+18.09	276.11' RT.	786446.8788	1920091.8798	I.PIN - BARNES & TRACY
46+06.07	147.76' RT.	786602.1675	1920101.9158	RAILROAD SPIKE
1+32.31	515.95' RT.	785941.8992	1920395.3783	I.PIN
1+32.38	30.03' LT.	785691.6298	1919978.8582	I.PIN - SITE ENG. INC.
3+15.31	30.03' LT.	785817.4902	1919833.1486	I.PIPE - POMEROY & ASSOC.
1+33.27	491.45' LT.	785423.7607	1919531.4430	I.PIPE - EMH&T INC. BENT S
3+15.73	491.31' LT.	785580.2161	1919437.5720	I.PIPE - POMEROY & ASSOC.
43+89.48	0.29' LT.	786618.7326	1919840.0810	COTTON GIN SPINDLE

MONUMENTS TO BE SET

℄ of RIGHT OF WAY		STATE PLANE GRID COORDINATES		MONUMENTS TO BE SET DURING CONSTRUCTION	R/W MON. EXPECTED TO BE DISTURBED	DESCRIPTION
STATION	OFFSET	NORTHING (Y)	EASTING (X)	MON. ASSY. 604	R/W MON. 604	
34+14.89	℄	1919004.2943	786117.4622	1		P.I. CENTERLINE
39+25.00	50.00' RT.	1919467.0430	786337.8615			I.P. SET
9+10.00	30.00' LT.	1919526.8187	786327.2099			I.P. SET
40+00.80	℄	1919503.1683	786419.8035			P.O.T. CENTERLINE
40+12.23	℄	1919515.9610	786425.7028	1		P.I. CENTERLINE
6+70.00	30.00' RT.	1919701.8805	786152.4147			I.P. SET
7+20.00	40.00' RT.	1919684.6940	786200.4212			I.P. SET
9+10.00	40.00' RT.	1919586.8157	786363.2703		1	I.P. SET
40+75.00	50.00' RT.	1919595.4670	786414.8025		1	I.P. SET
43+90.13	℄	1919840.7895	786618.8208	1		P.O.T. CENTERLINE
TOTAL TO GENERAL SUMMARY				3	2	

REV. BY	DATE	DESCRIPTION

DATE COMPLETED 12/6/11

HORIZONTAL SCALE IN FEET

PID NO. 89542

R/W DESIGNER LAM
R/W REVIEWER JJR

PROPERTY MAP

LIC-62-5.17

2/5

TOTAL NUMBER OF :

6 OWNERSHIPS
6 PARCELS
0 TOTAL TAKES
0 OWNERSHIPS W/ STRUCTURES INVOLVED

RECORD AREA - TOTAL PRO - NET TAKE = NET RESIDUE
GROSS TAKE - PRO IN TAKE = NET TAKE

ALL AREAS IN ACRES

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF THE OHIO DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1	KARL E. HARRIS & LINDA C. HARRIS	4	D.B. 813	774	052-173382.00.000	18.129									NO TAKE		
2	CDM CAPITAL ASSET GROUP, INC.	4	20061117	0033636	053-172644-00.002	13.026									NO TAKE		
3-WDV	H&H PROPERTIES, LLC	4, 5	20070716	0018334	053-172644-00.004	6.710	0.000	0.015	0.000	0.015			6.695	STATE & FEDERAL	1 TREE TO BE REMOVED; IN NAME AND FOR USE OF VILLAGE OF JOHNSTOWN		
3-T1		4, 5					0.000	0.053	0.000	0.053					FOR GRADING, 2 BUSHES TO BE REMOVED		
3-T2		5					0.000	0.008	0.000	0.008					FOR GRADING		
4	BRUCE M. MICHELSON & SUSAN L. MICHELSON	4, 5	O.R. 158	235	052-174090.00.000	79.434									NO TAKE		
5	VILLAGE OF JOHNSTOWN	5	P.B. 16	202	NO PARCEL NO.										NO TAKE		
6-WDV	TECHNICAL RUBBER COMPANY, INC.	5	20101011	0020335	053-172644-00.001	9.682	0.548	0.068	0.000	0.068			9.066	STATE & FEDERAL	4 TREES TO BE REMOVED; IN NAME AND FOR USE OF VILLAGE OF JOHNSTOWN		
6-T							0.000	0.109	0.000	0.109	S (2)				FOR GRADING AND DRIVEWAY CONSTRUCTION, 2 PRIVATE SIGNS TO BE REMOVED		
7	THE HUNTINGTON NATIONAL BANK	4, 5	19981201	0046059	NO PARCEL NO.	0.489 (c)									NO TAKE, CENTERLINE OF U.S. 62 WAS NORTHERLY LINE OF 58.390 ACRE TRACT. 6.710 ACRE SPLIT CONVEYED TO SOUTHERLY RIGHT-OF-WAY LINE AT U.S. 62, LEAVING A REMNANT IN NAME OF THE HUNTINGTON NATIONAL BANK BETWEEN THE TWO LINES.		

NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.

NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

LEGEND:
WD = WARRANTY DEED
T = TEMPORARY EASEMENT
V = IN NAME OF ANOTHER STATE AGENCY, LPA, ETC.

* DENOTES RIGHT OF WAY ENCROACHMENT

(c) = CALCULATED

REV. BY	DATE	DESCRIPTION
LMO	2/2/11	REMOVED FENCE ENCROACH. FROM PAR. 4
KJG	12/16/11	DURATION OF TEMPORARY PARCELS

DATE COMPLETED 12/6/11

FEDERAL PROJECT NO. E110496
PID NO. 89542
STATE JOB NO. 457575
P/W DESIGNER LAM
P/W REVIEWER JJR

SUMMARY OF ADDITIONAL RIGHT OF WAY

LIC-62-5.17

3 / 5

43
45

REV.	BY	DATE	DESCRIPTION
	LMO	2/2/12	REMOVED FENCE ENCROACH. FROM PAR. 4
DATE COMPLETED		12/6/11	

44 / 45	4 / 5	LIC-62-5.17	RIGHT OF WAY PLAN STA. 34+00 TO STA. 39+00	R/W DESIGNER LAM	PID NO. 89542	HORIZONTAL SCALE IN FEET
				R/W REVIEWER JJR		

LICKING COUNTY
MONROE TOWNSHIP
VILLAGE OF JOHNSTOWN
LOT1, QTR TWP 4, TWP 3, RANGE 15
UNITED STATES MILITARY LANDS

RIGHT OF WAY CURVE DATA

CURVE	RADIUS	Δ	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	35.00'	90°03'30"	55.01'	49.52'	S 76°02'12" E
C2	35.00'	90°16'30"	55.15'	49.62'	N 14°07'48" E

(3)
H&H PROPERTIES, LLC
495 E. COSHOCTON STREET
JOHNSTOWN, OHIO 43031
PID: 053-172644-00.004
INSTR:200707160018334
6.710 ACRES

INDUSTRIAL

(5)
VILLAGE OF JOHNSTOWN
COMMERCE BOULEVARD DEDICATION
P.B. 16, PG. 202-203
(NO AUDITORS NUMBER ASSIGNED)

(7)
THE HUNTINGTON NATIONAL BANK
NO PARCEL NO.
INSTR: 199812010046059

MATCH LINE - STA. 39+00, SEE SHEET 4.

END WORK
STA. 6+70.00

10' UTILITY EASEMENT
P.B. 16, P.G. 202-203

EX. DRIVE (NO WORK)
+49.0
+63.0

3-T1
3-T2
6-T
3-WDV
6-WDV

EX. ELEC. TRANSFORMER (DO NOT DISTURB)

39+35.71
50.00' RT.
39+36.44
60.00' RT.
39+25.00
50.00' RT.
8+80.00
40.00' LT.
9+18.73
40.00' LT.
8+80.00
30.00' LT.
9+10.00
30.00' LT.
9+14.93
30.00' LT.
9+14.75
30.00' RT.
9+10.00
40.00' RT.

CONST. LIMITS

EX. VILLAGE OF JOHNSTOWN SIGN TO BE RELOCATED

PROP. SIGNAL POLE

STA. 40+00.80,
℄ E. COSHOCTON ST. (U.S. 62) =
STA. 10+00.00, ℄ COMMERCE BLVD.

S 31°03'57" E
50.00'

N 58° 56' 03" E

89° 56' 30"

+90

PI Sta. 40+12.23

EX. R/W

TO BE REMOVED

EX. ELEC. TRANSFORMER TO BE RELOCATED

EX. PRIVATE SIGN TO BE REMOVED

N 31° 00' 27" W

℄ R/W & CONST. COMMERCE BLVD.

13.9'± 14.0'±

S 19°41'51" E
50.99'

N 31°00'27" W
244.75'

S 31°00'27" E
190.00'

S 31°00'27" E
180.00'

S 31°00'27" E
65.00'

S 58°59'33" W
20.00'

7+20.00
40.00' RT.

6+70.00
30.00' RT.

6+70.00
50.00' RT.

8+50.00
50.00' RT.

8+50.00
60.00' RT.

9+15.00
60.00' RT.

40+75.00
50.00' RT.

40+80.00
60.00' RT.

S 58°59'33" W
10.00'

+70 BEGIN PAVEMENT PLANING & WIDENING BEGIN TAPER RT.

+20 END TAPER RT.

+65.0 39' ASPH.

PROP. TRAFFIC CONTROLLER

+21.56
END CURB & GUTTER RT.

S 30°43'57" E
10.00'

41+75.00
60.00' RT.

+75
END PAVEMENT RESURFACING & WIDENING

41+75.00
50.00' RT.

N 30°43'57" W
50.00'

N 59° 16' 03" E

40+66.21

18.02'

11.1'± 11.7'±

CONST. LIMITS

CULTIVATED

(4)
BRUCE M. MICHELSON & SUSAN L. MICHELSON
PID: 052.174090.00.000
79.434 ACRES
D.B. 158, PG. 235

VILLAGE OF JOHNSTOWN
MONROE TOWNSHIP

END PROJECT STA. 41+75.00
E1101496
END END ACQUISITION STA. 41+75.00

	BEARING	DISTANCE
A	S 79°53'47" E	15.19'
B	N 58°56'03" E	10.71'
C	S 31°00'27" E	4.93'
D	N 79°53'47" W	60.71'
E	S 31°00'27" E	30.00'
F	S 58°59'33" W	10.00'
G	N 31°00'27" W	38.73'
H	S 79°53'47" E	13.27'
I	N 59°16'03" E	8.79'
J	S 09°31'48" W	52.25'
K	S 06°26'58" W	31.10'

(6)
TECHNICAL RUBBER COMPANY, INC.
539 E. COSHOCTON STREET
JOHNSTOWN, OHIO 43031
PID: 053-172644-00.001
INSTR: 201010110020335
9.682 ACRES

25' VILLAGE OF JOHNSTOWN EASEMENT
O.R. 198, P.G. 104

10' COLUMBIA GAS EASEMENT
O.R. 192, PG. 731

REV. BY	DATE	DESCRIPTION
LMO	2/9/12	REVISED DRIVE ON PAR. 6
LMO	2/2/12	REMOVED FENCE ENCROACH. FROM PAR. 4
DATE COMPLETED		12/6/11

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 89542

DESIGNER LAM
REVIEWER JJR

RIGHT OF WAY PLAN
LIC-62-5.17
STA. 6+00 TO STA. 10+00, STA. 39+00 TO STA. 42+00

5 / 5
45 / 45

PROJECT DESCRIPTION

THIS PROJECT, LIC-62-5.17, CONSISTS OF INTERSECTION IMPROVEMENTS ALONG US-62 AND COMMERCE BOULEVARD. PROPOSED IMPROVEMENTS ARE THE WIDENING OF US-62 AND COMMERCE BOULEVARD NEAR THE INTERSECTION, AND INSTALLATION OF LIGHT POLES.

GEOLOGY

THE SITE LIES WITHIN THE GLACIATED REGION OF OHIO, ON THE EASTERN EDGE OF THE GLACIATED SECTION OF THE CENTRAL LOWLANDS PROVINCE FROM THE WISCONSINAN AND ILLINOISAN GLACIATION DEPOSITS. THE SOILS UNDERLYING THE PROJECT AREA ARE COMPOSED PRIMARILY OF GLACIALLY DEPOSITED TILL MATERIALS. THE SOILS ARE UNDERLAIN BY SEDIMENTARY ROCKS OF THE MISSISSIPIAN AGE.

RECONNAISSANCE

TERRACON VISITED THE SITE ON OCTOBER 25, 2011 TO STAKE THE BORING LOCATIONS. THE LAND USAGE ALONG US-62 CONSISTED OF AGRICULATURAL FIELDS ALONG THE NORTHWEST SIDE AND COMMERCIAL AREAS ALONG THE SOUTHEAST SIDE. THE LAND USAGE ALONG COMMERCE BOULEVARD WAS COMMERCIAL. THE PAVEMENT CONDITION IS GENERALLY GOOD.

SUBSURFACE EXPLORATION

FOUR (4) TEST BORINGS WERE COMPLETED AS PART OF THIS SUBSURFACE EXPLORATION, BETWEEN NOVEMBER 3 AND 4, 2011. THE BORINGS WERE DRILLED WITH AN ATV-MOUNTED ROTARY DRILL RIG, USING 3.25-INCH I.D. HOLLOW STEM AUGERS TO ADVANCE THE BOREHOLES. DISTURBED SOIL SAMPLES USING A 2-INCH NOMINAL SPLIT SPOON WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST AT 1.5 TO 2.5 FOOT INTERVALS FOR THE FULL DEPTH OF THE BORINGS. A CME AUTOMATIC HAMMER WAS USED WITH A DRILL ROD ENERGY RATIO OF 75%.

EXPLORATION FINDINGS

ALL OF THE BORINGS ENCOUNTERED SOILS OF GLACIAL ORIGIN. APPROXIMATELY 3 TO 4 INCHES OF TOPSOIL WAS ENCOUNTERED IN BORINGS B-001-0-11 TO B-003-0-11 AT THE GROUND SURFACE. BORING B-004-0-11 ENCOUNTERED A PAVEMENT SECTION CONSISTING OF APPROXIMATELY 10 INCHES OF ASPHALT PLACED OVER ABOUT 2 INCHES OF AGGREGATE BASE COURSE.

FILL WAS ENCOUNTERED IN BORING B-001-0-11 TO A DEPTH OF APPROXIMATELY 3 FEET BELOW GROUND SURFACE. FILL MATERIALS CONSISTED OF COHESIVE SOILS AND WERE CLASSIFIED AS ODOT A-6B AND A-7-6.

BENEATH THE SURFACE AND FILL MATERIALS, NATIVE COHESIVE SOILS WERE ENCOUNTERED TO THE BORING TERMINATION DEPTHS OF 10 FEET IN BORINGS B-001-0-11 & B-004-0-11, AND 20 FEET IN BORINGS B-002-0-11 & B-003-0-11. SOILS WERE CLASSIFIED AS ODOT A-6A, A-6B AND A-7-6.

GROUNDWATER WAS NOT ENCOUNTERED IN ANY OF THE BORINGS WHILE DRILLING OR AFTER CASING REMOVAL.

SPECIFICATIONS

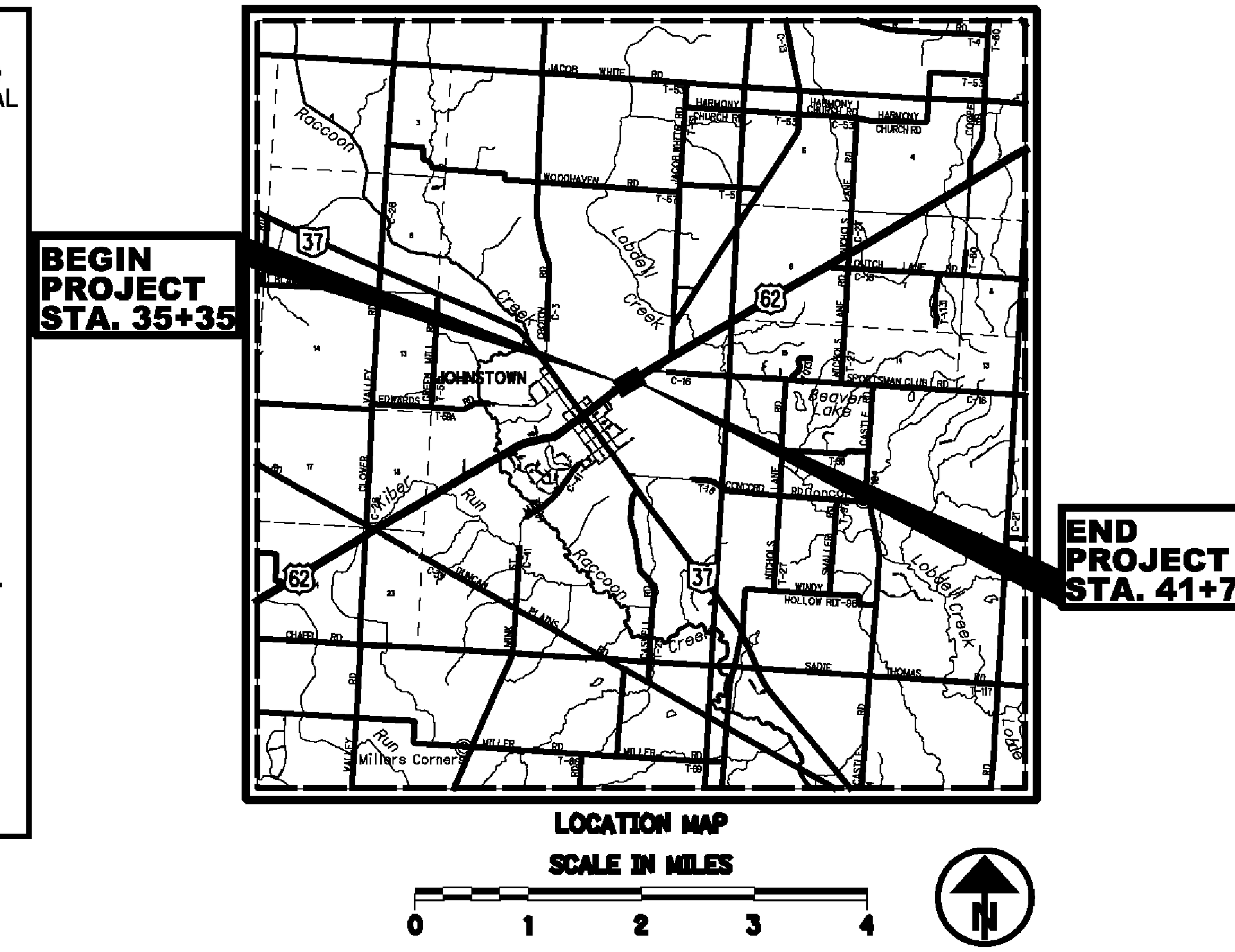
THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED APRIL 2010.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. HISTORICAL DATA FOR THE SITE, IF AVAILABLE, CAN BE OBTAINED FROM THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET IN COLUMBUS, OHIO. THE GEOTECHNICAL ENGINEERING REPORT DATED DECEMBER 6, 2011 PREPARED BY TERRACON, ADDRESSING THE INFORMATION OBTAINED IN THIS DRAWING SET CAN BE OBTAINED FROM THE OHIO DEPARTMENT OF TRANSPORTATION.

LEGEND

	DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
(hatch)	SILT AND CLAY	*A-6a (5)*	*8*	*10*
(hatch)	SILTY CLAY	*A-6b (11)*	*4*	*5*
(hatch)	CLAY	*A-7-6 (19)*	*2*	*3*
		TOTAL	*14*	*18*
(hatch)	PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
(hatch)	SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		
(symbol)	BORING LOCATION - PLAN VIEW.			
(symbol)	DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.			
WC	INDICATES WATER CONTENT IN PERCENT.			
N_{60}	INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.			
SS	INDICATES A SPLIT SPOON SAMPLE.			



LOCATION MAP

SCALE IN MILES

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm	
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

INDEX OF SHEETS

LOCATION FROM STA. TO STA.	PLAN VIEW SHEET	PROFILE SHEET	CROSS-SECTION SHEET	CUT MAX.	FILL EMB. MAX.
U.S. 62					
33+00 38+50	3	3	-	0.00 FT	0.00 FT
38+50 44+00	4	4	-	0.00 FT	0.00 FT
COMMERCE BOULEVARD					
5+00 10+00	5	5	-	0.00 FT	0.00 FT

RECON. - DJT 10/25/11
DRILLING - TS 11/3-4/11
DRAWN - KJM 12/13/11
REVIEWED - KME 12/16/11

DESIGN AGENCY Terracon

PID NO. 89542

SOIL PROFILE

LIC-62-05.17

SUMMARY OF SOIL TEST DATA

U.S. 62

STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-001-0-11	00.00-01.50	SS-1	67	1	2	4	55	38	40	21	19	25	A-6b (12)
STA. 37+17, 23' RT.	01.50-03.00	SS-2	83	2	3	10	33	52	66	25	41	41	A-7-6 (20)
NORTHING=786253.8	03.00-04.50	SS-3	83			SAME AS SS-4						27	A-7-6 (VISUAL)
EASTING=1919274.9	04.50-06.00	SS-4	56	0	2	11	39	48	49	16	33	31	A-7-6 (18)
	06.00-07.50	SS-5	67			SAME AS SS-4						24	A-7-6 (VISUAL)
	08.50-10.00	SS-6	33			SAME AS SS-4						18	A-7-6 (VISUAL)
B-002-0-11	00.00-01.50	SS-1	67			SAME AS SS-2						23	A-6b (VISUAL)
STA. 39+90, 40' LT.	01.50-03.00	SS-2	78	2	7	20	26	45	40	17	23	23	A-6b (12)
NORTHING=786448.1	03.00-04.50	SS-3	44			SAME AS SS-2						20	A-6b (VISUAL)
EASTING=1919476.0	04.50-06.00	SS-4	100			SAME AS SS-2						16	A-6b (VISUAL)
	06.00-07.50	SS-5	100	12	9	15	35	29	28	15	13	13	A-6a (7)
	08.50-10.00	SS-6	100			SAME AS SS-7						13	A-6a (VISUAL)
	11.00-12.50	SS-7	100	12	13	15	31	29	26	14	12	12	A-6a (6)
	13.50-15.00	SS-8	17			SAME AS SS-7						11	A-6a (VISUAL)
	16.00-17.50	SS-9	100	27	9	12	28	24	25	13	12	12	A-6a (4)
	18.50-20.00	SS-10	100			SAME AS SS-9						9	A-6a (VISUAL)
B-003-0-11	00.00-01.50	SS-1	67	16	7	15	31	31	35	16	19	20	A-6b (9)
STA. 40+95, 29' RT.	01.50-03.00	SS-2	100			SAME AS SS-1						17	A-6b (VISUAL)
NORTHING=786442.5	03.00-04.50	SS-3	100	17	9	15	32	27	28	15	13	14	A-6a (6)
EASTING=1919601.7	04.50-06.00	SS-4	100			SAME AS SS-3						13	A-6a (VISUAL)
	06.00-07.50	SS-5	100			SAME AS SS-3						15	A-6a (VISUAL)
	08.50-10.00	SS-6	100	12	14	17	33	24	27	15	12	14	A-6a (5)
	11.00-12.50	SS-7	67			SAME AS SS-6						13	A-6a (VISUAL)
	13.50-15.00	SS-8	100	12	11	15	35	27	24	13	11	12	A-6a (6)
	16.00-17.50	SS-9	100			SAME AS SS-8						13	A-6a (VISUAL)
	18.50-20.00	SS-10	100			SAME AS SS-8						11	A-6a (VISUAL)

SUMMARY OF SOIL TEST DATA

COMMERCE BOULEVARD

STATION & OFFSET	FROM TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS
B-004-0-11	01.00-02.50	SS-1	89	9	7	14	35	35	33	16	17	13	A-6b (10)
STA. 7+33, 11' RT.	02.50-04.00	SS-2	67	10	10	16	35	29	30	15	15	14	A-6a (VISUAL)
NORTHING=786196.3	04.00-05.50	SS-3	100			SAME AS SS-2						13	A-6a (VISUAL)
EASTING=1919653.6	05.50-07.00	SS-4	100	9	9	14	37	31	26	14	12	12	A-6a (7)
	07.00-08.50	SS-5	100			SAME AS SS-4						11	A-6b (VISUAL)
	08.50-10.00	SS-6	100			VISUAL CLASSIFICATION						12	A-6b (VISUAL)

DRAWN KJM
CHECKED KME

SOIL PROFILE
SUMMARY OF SOIL TEST DATA

LIC-62-5.17

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KARL E. & LINDA C. HARRIS

BEGIN PROJECT STA. 35+35.00

E110496

BRUCE M. & SUSAN L. MICHELSON

MONROE TOWNSHIP

VILLAGE OF JOHNSTOWN

8"

℄ R/W & CONST. U.S. 62

33 34 35 36 37 38

MATCH LINE - STA. 38+50

B-001-0-11

3"

CDM CAPITAL ASSET GROUP, INC.

H&H PROPERTIES, LLC

1,155 1,150 1,145 1,140 1,135 1,130

EXISTING PROFILE

PROPOSED PROFILE

B-001-0-10
STA. 37+17
23' RT.
TOPSOIL=0.3'

5	25
8	41
11	27
8	31
8	24
11	18

N_{80} WC

33	34	35	36	37	38
1,151.57	1,150.47	1,149.40	1,148.56	1,147.75	1,147.00
1,146.24	1,145.68	1,145.36	1,145.21	1,145.24	1,145.51

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KJM CHECKED KME

SOIL PROFILE
STA. 33+00 TO STA. 38+50 U.S. 62

LIC-62-05.17

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STA. 40+00.80, ℄ U.S. 62 =
STA. 10+00.00, ℄ COMMERCE BLVD.

END PROJECT
STA. 41+75.00

E110496

BRUCE M. & SUSAN L.
MICHELSON

MONROE TOWNSHIP
VILLAGE OF JOHNSTOWN

B-002-0-11

℄ R/W & CONST. U.S. 62

MATCH LINE - STA. 38+50, SEE SHEET __.

39 40 41 42 43 44

SPORTSMAN CLUB ROAD

B-003-0-11

MATCH LINE - STA. 9+00, SEE SHEET __.

℄ R/W & CONST. COMMERCE BLVD.

H&H PROPERTIES

TECHNICAL RUBBER CO., INC.

1,145.51	1,145.97	1,146.56	1,147.15	1,147.86	1,148.44	1,148.82	1,149.06	1,149.31	1,149.60	1,149.79	1,149.64
39	40				41		42		43		44

1,155
1,150
1,145
1,140
1,135
1,130

PROPOSED PROFILE

EXISTING PROFILE

B-002-0-10
STA. 39+90
40' LT.
TOPSOIL=0.3'

6	23
6	23
14	20
19	16
22	13
21	13
19	12
25	11
21	12
18	9

N_{60} WC

B-003-0-10
STA. 40+95
29' RT.
TOPSOIL=0.3'

8	20
8	17
21	14
26	13
20	15
14	14
16	13
14	12
11	13
11	11

N_{60} WC

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KJM
CHECKED KME

SOIL PROFILE
STA. 38+50 TO STA. 44+00 U.S. 62

LIC-62-05.17

4/5

1

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H&H PROPERTIES, LLC

END WORK
STA. 6+70.00

+49.0
EX. DRIVE
(NO WORK)

+63.0
EX. DRIVE
(NO WORK)

CONST.
LIMITS

MATCH LINE - STA. 9+00

℄ R/W & CONST.
COMMERCE BLVD.

B-004-0-11

TECHNICAL RUBBER CO., INC.

B-004-0-10
STA. 7+33
11' RT.
ASPHALT=0.8'
AGGREGATE BASE COURSE=0.2'

EXISTING
PROFILE

PROPOSED
PROFILE

19	13
19	14
39	13
24	12
24	11
19	12

N_{60} WC

1,160
1,155
1,150
1,145
1,140
1,135

1,148.13 1,148.21 1,148.53 1,148.86 1,149.10 1,149.45 1,149.66 1,149.37 1,148.42 1,146.94 1,147.16

5 6 7 8 9 10

39 40 41

HORIZONTAL SCALE IN FEET
0 10 20 40

DRAWN KJM
CHECKED KME

SOIL PROFILE
STA. 5+00 TO STA. 10+00 COMMERCE BLVD.

LIC-62-05.17

5 5

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